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JOURNAL OF THE HISTORY OF MEDICINE AND ALLIED SCIENCES

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* * * * * * *

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JOURNAL OF THE HISTORY OF MEDICINE AND ALLIED SCIENCES

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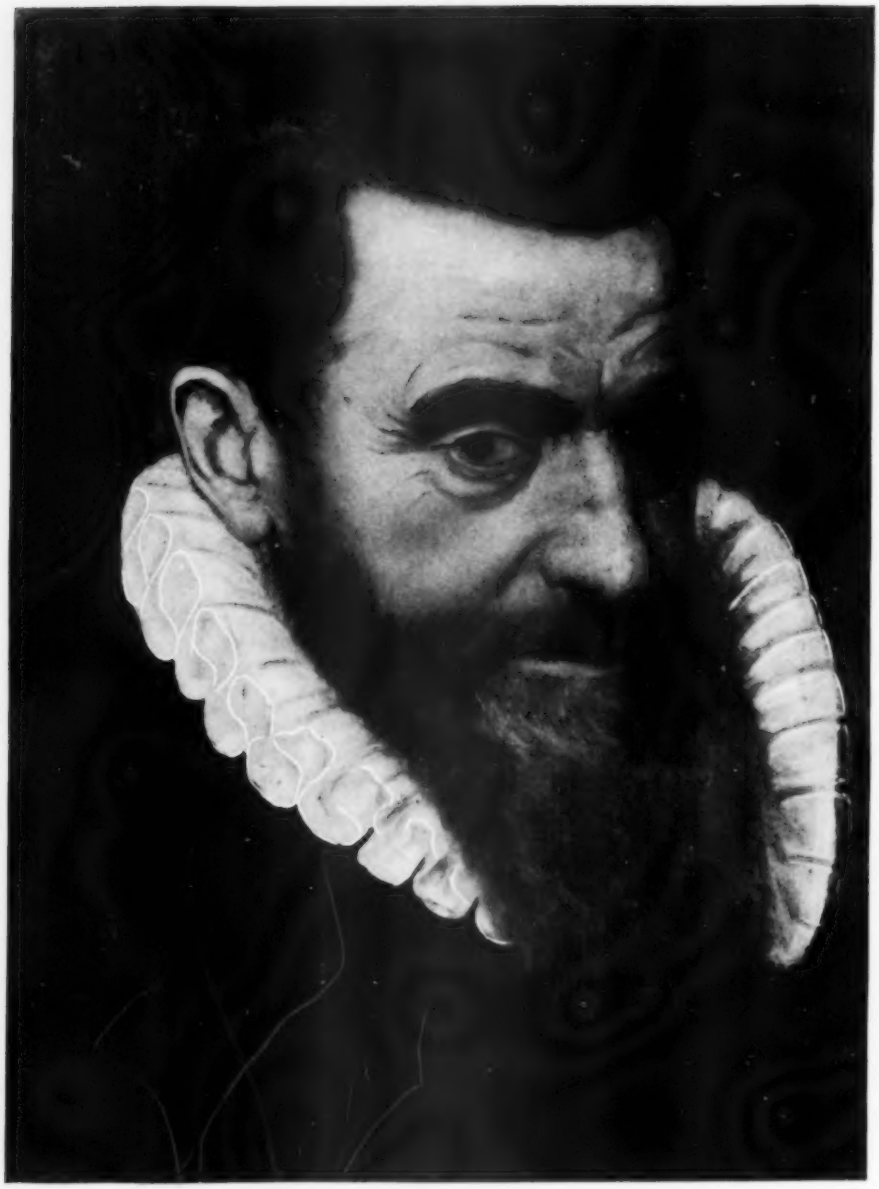

Fig. 1. Painting of Paré, 1582, ascribed to Pierre Pourbus. Reproduced by courtesy of the New-York Historical Society, New York City.

Contemporary Portraits of Ambroise Paré

With Particular Reference to the Painting in Possession of the New-York Historical Society*

JANET DOE†

A FEW years ago my attention was called by Dr. Fenwick Beekman to a portrait in the Museum of the New-York Historical Society said to be of Ambroise Paré by Pierre Pourbus. Because the picture, dated in Paré's lifetime, was a particularly fine one and not hitherto mentioned in medical literature, it seemed as if it would repay study. The Society, through its Curator of Paintings and Sculpture, Mr. Donald A. Shelley, very kindly made available to me the data it had. As might have been expected, no additional information as to the picture's provenance has been discoverable beyond that furnished by Mr. Shelley.

The Paré portrait (Fig. 1) came to the Society in the collection deeded to it by Thomas Jefferson Bryan April 2, 1867. Mr. Bryan, graduating from Harvard in 1823, had studied law but never practised. A great interest in pictures and in travel led him to live in Paris for twenty years, during which time he collected examples of the work of good artists, examining into their origin and merits. When he returned to America, some fifteen years before his death, his collection was a great care to him and cost more to insure than he could afford. He therefore guarded it himself, displaying it on the walls of a spacious room on Broadway at 13th Street, New York, and living in adjoining quarters. A sixteen-page catalogue[1] issued by him in 1852 refers to it as the "Bryan Gallery of Christian Art" and includes 222 pictures. He published a more elaborate booklet[2] of 134 pages in 1853 "containing critical

* Much of the information here given would have been impossible to gather without the kindly help of friends and colleagues. My debt is warmly acknowledged to: Dr. Fenwick Beekman, President of the New-York Historical Society; Mr. Donald A. Shelley, Curator of Paintings and Sculpture, New-York Historical Society; Monsieur P. de la Raudière, owner of the Paley painting; Dr. Maurice Chevassu, ex-President of the Académie de Chirurgie; Dr. Louis Bazy, owner of the Pourbus portrait; Dr. Maurice Genty, Librarian of the Académie de Médecine; Dr. A. A. Hahn, Librarian of the Faculté de Médecine; the late Sir D'Arcy Power; the late Mr. C. J. S. Thompson, and his daughter, Miss Thompson; Mr. W. R. Le Fanu, Librarian of the Royal College of Surgeons; Dr. Julius S. Held, Department of Fine Arts, Barnard College.

† New York, New York.

1 Bryan, T. J. *Catalogue of the Bryan Gallery of Christian art from the earliest masters to the present time.* New York, George F. Nesbitt & Co., 1852.

2 Bryan, T. J. *Companion to the Bryan Gallery of Christian art: containing critical descriptions of the pictures and biographical sketches of the painters; with an introductory essay and an index by Richard Grant White.* New York, Baker, Godwin & Co., 1853.

descriptions of the pictures and biographical sketches of the painters, with an introductory essay and an index by Richard Grant White," in which the pictures totalled 250. In neither of these publications, however, is there any mention of a portrait of Ambroise Paré nor of one by Pourbus. Mr. White in his introduction has this to say of the Gallery's proprietor:

> From his knowledge of the mechanical part of the art, and his extended opportunities for the observation of the works of the Great Masters in Europe he was eminently qualified for the labor he assumed . . . Mr. Bryan has bought and cleaned his pictures himself . . . [the author] states his confidence in the correctness with which the works have been attributed to the various Masters whose names they bear.

This guardianship of his collection proving onerous to Mr. Bryan, besides restricting his freedom to travel, he deposited the collection in Cooper Union, hoping by this means to secure adequate care of his pictures and at the same time let the public see them free of charge. The trustees of Cooper Union, in their first annual report, January 1, 1860, announced the deposit and hoped it would encourage other individuals to do likewise. Their second report, in 1861, mentions that the "Picture Gallery continues to be a very attractive feature." The third and fourth reports are not available, but the fifth, July 1, 1864, states that "the Picture Gallery contains 383 pictures, of which 241 belong to the Bryan Gallery, recently presented to the New-York Historical Society by its owner, Mr. Thomas J. Bryan. During the year 164,343 visitors came to the Gallery. . . . The Union regrets it may be necessary soon for the public to go elsewhere for admission to a free art gallery." And in the seventh report, July 1, 1866: "The removal of the Bryan Gallery to the New-York Historical Society, to which it has been presented, enables the Union to rearrange its rooms." (!) The reason for the transfer was, as reported in the Society's Proceedings[3] on the announcement of Mr. Bryan's death in 1870, the rough handling which the pictures received and the loss of six of them. Small wonder!

The Paré portrait is listed for the first time, so far as is ascertainable, in the New-York Historical Society's *Catalogue of the Museum and Gallery of Art*, 1866, where it appears on page 48 (second paging), as: "No. 430, Portrait of Dr. Ambroise Paré, the Father of French Surgery (Bryan Collection)." No artist is given. In the Society's *Catalogue* of 1887, page 48 (second paging), it

[3] New-York Historical Society. Proceedings on the announcement of the death of Thomas J. Bryan, June 1870. New York [New York Evening Post], 1870.

bears the same title with the addition of the artist's name, "Peter Porbus." This ascription was made, therefore, between 1866 and 1887. Later catalogues give no further information. The picture has never been lent outside of the Society's Museum. No papers from Mr. Bryan came to the Society with his collection, and it is not known if he left any at all.

Bryan's knowledge of the picture—or his guess, perhaps—did not appear to include the artist's name, since the latter was not given in the catalogue published before Bryan's death. There can be little doubt that Bryan would not have hesitated to state his ideas had he suspected Pourbus—if we may go by the description of the old collector's personality as given in the Society's Proceedings of 1870: "However the absolute accuracy of his judgment may be questioned, his sincerity and chivalrous devotion to what he regarded as true can never be doubted by those who knew him. He held tenaciously, and both defended and advocated his opinions with great ardor and energy."

This, then, is all that is known of the provenance of the Paré portrait: it was acquired by Bryan some time between 1853 (when it was not listed in his collection) and 1866 (when it was listed anonymously in the New-York Historical Society's catalogue). In 1887 its entry ascribed it to Pierre Pourbus.

The painting (Fig. 1), 14½ by 11 inches, portrays the head and shoulders of a black-coated man, his face turned slightly to the right. His brown hair, falling forward over his forehead, recedes but little at the temples, and his full brown beard, cut square, extends below the plain white ruff. The large dark eyes look straight at the beholder. The flesh has a healthy pink glow, and while there are a few lines across the forehead, crows' feet in the corners, and pouches under the eyes, the general effect is one of middle age. The date 1582 is painted in the upper left corner of the background.

It was this appearance of comparative youthfulness that first raised the question as to whether or not the original of this portrait could be Ambroise Paré, since in 1582 the latter was seventy-two years old, contemporary pictures showing him at that time as an old man. The obvious procedure was to assemble the various representations made of Paré during his lifetime, and to try by comparing these with the New-York Historical Society portrait (hereafter referred to as the NYHS portrait) to establish or disprove the identity of the latter. Sources for contemporary pictures

have included: a search through the vast literature about Paré; letters to the large medical libraries in this country, London, and Paris; and visits to the portrait collections at the Metropolitan Museum of Art, the Frick Art Reference Library, and the New York Public Library. While this is far from exhausting all the possibilities, it has turned up enough information to come to a tentative conclusion with regard to the portrait under consideration.

Of course a great number of reproductions of Paré are extant. For the present purpose only those made during or shortly after his lifetime will be considered. This limits the inquiry, happily, to comparatively few: first, those engravings published in Paré's books while he was alive; second, the only authenticated painting, that from the Château de Paley; third, three unauthenticated paintings in Paris, one at the Faculté de Médecine, one at the Académie de Chirurgie, and one in possession of Dr. Louis Bazy; and fourth, a reproduction of a pencil drawing at the Frick Art Reference Library.

Let us take the engravings in the books first. These, supposedly done to Paré's own order and published under his eye, must of necessity rank first in reliability. If he had not thought them passable likenesses, he would assuredly not have let them appear—it is a pity some of them did. The earliest to be published (Fig. 2), that in his *Anatomie universelle,* 1561, is a copper engraving with a ruled frame, showing Paré aged forty-five. The monogram signature, LR, may possibly refer to Jean Le Royer, the printer of the volume in which it appears, who had been for many years engraver to the king. This engraving and the woodcut next to be mentioned are believed by the artist whom I consulted, Dr. Julius S. Held, to have been made from the same drawing. The second portrait to appear is that in Paré's *Méthode curative,* 1561/2, again showing Paré at forty-five, this time in a woodcut with an oval border (Fig. 3). Didot[4] attributes the design of this picture—which he calls "superbe"—to Jean Cousin, and says that it was engraved by Jean Le Royer. This cut was reproduced again in the *Dix livres,* 1564, with the age changed to forty-eight; again in the *Cinq livres,* 1572, aged fifty-five; and once more in the *Deux livres,* 1573. These complete the series showing Paré in middle age, and all are essentially the same likeness.

Following after these by only two years comes the unsigned and undated woodcut profile in his *Oeuvres* of 1575 (Fig. 4).

[4] Didot, A. F. *Catalogue illustré des livres précieux.* Paris, 1878-84, vol. 2 (1879), p. 180.

Fig. 2. Copper engraving of Paré, aged forty-five. Reproduced from his *Anatomie Universelle*, 1561, by courtesy of the New York Academy of Medicine.

Fig. 3. Woodcut of Paré, aged forty-five. Reproduced from his *Méthode Curative des Playes* 1561/2, by courtesy of the Army Medical Library.

Fig. 4. Woodcut of Paré. Reproduced from his *Oeuvres*, first edition, 1575, by courtesy of the Army Medical Library.

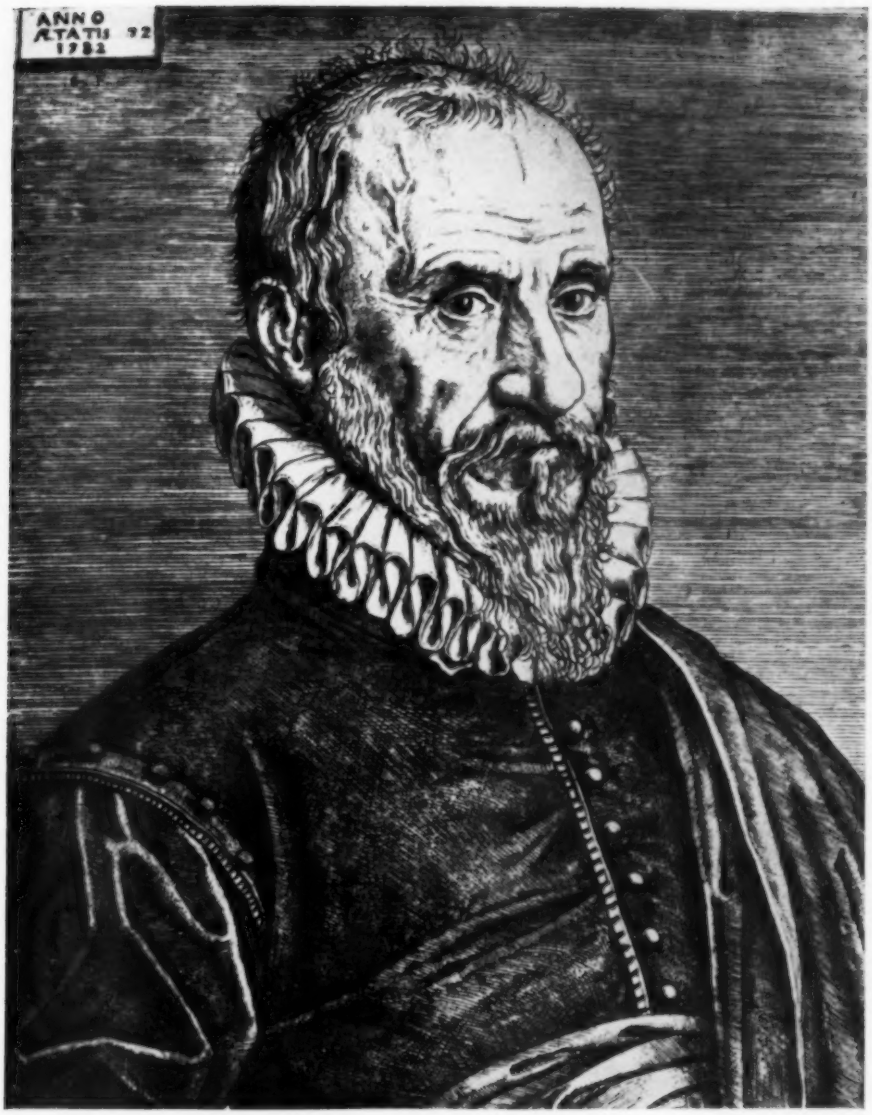

Fig. 5. Copper engraving of Paré, aged seventy-two. Reproduced from his *Discours de la Mumie*, 1582, by courtesy of the New York Academy of Medicine.

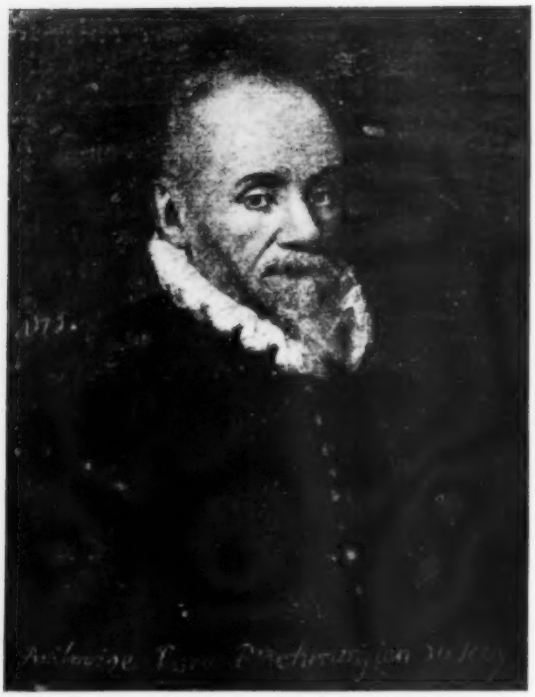

Fig. 6. Painting of Paré, 1575, formerly at the Château de Paley. Reproduced by courtesy of the owner, Monsieur P. de la Raudière, Paris.

Fig. 7. Painting of Paré by unknown artist. Reproduced by courtesy of the Faculté de Médecine.

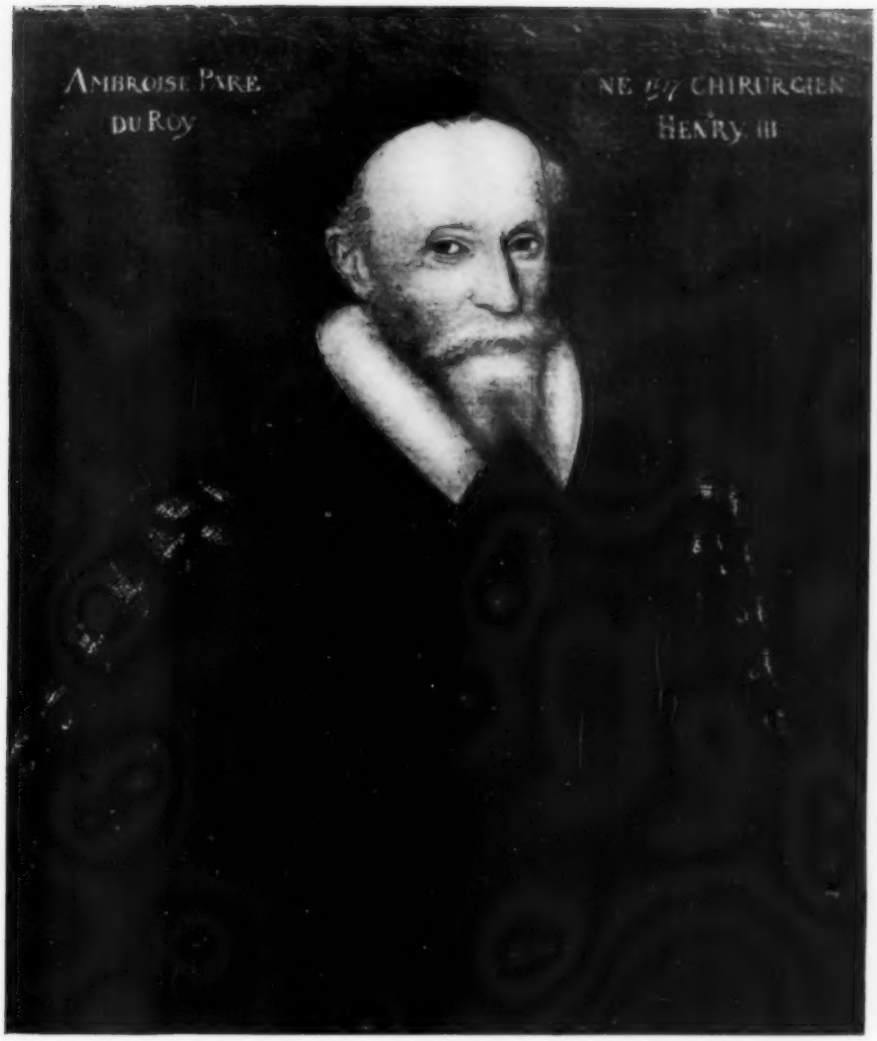

Fig. 8. Painting of Paré by unknown artist. Formerly at the Château d'Azay-le-Rideau. Reproduced by courtesy of the Académie de Chirurgie.

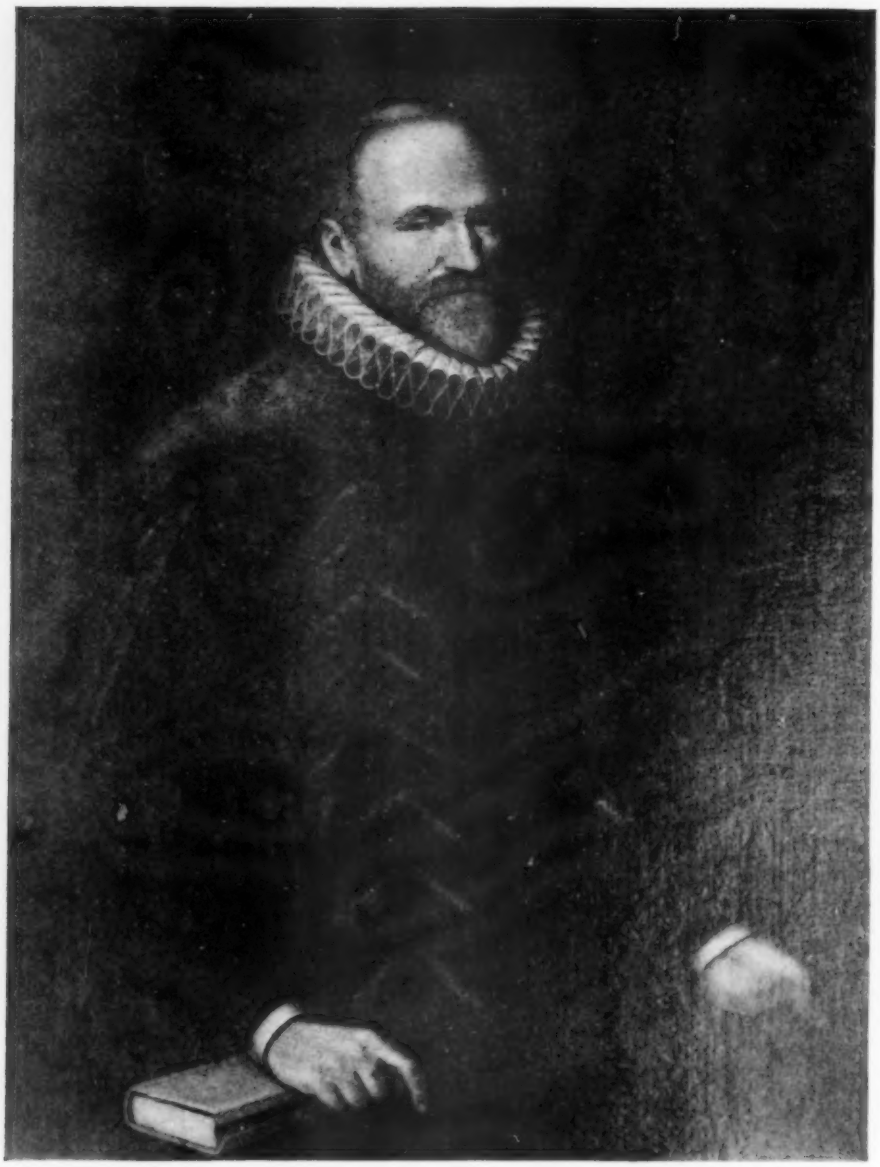

Fig 9. Painting of Paré ascribed to Pierre Pourbus. Reproduced by courtesy of the owner, Dr. Louis Bazy, Paris.

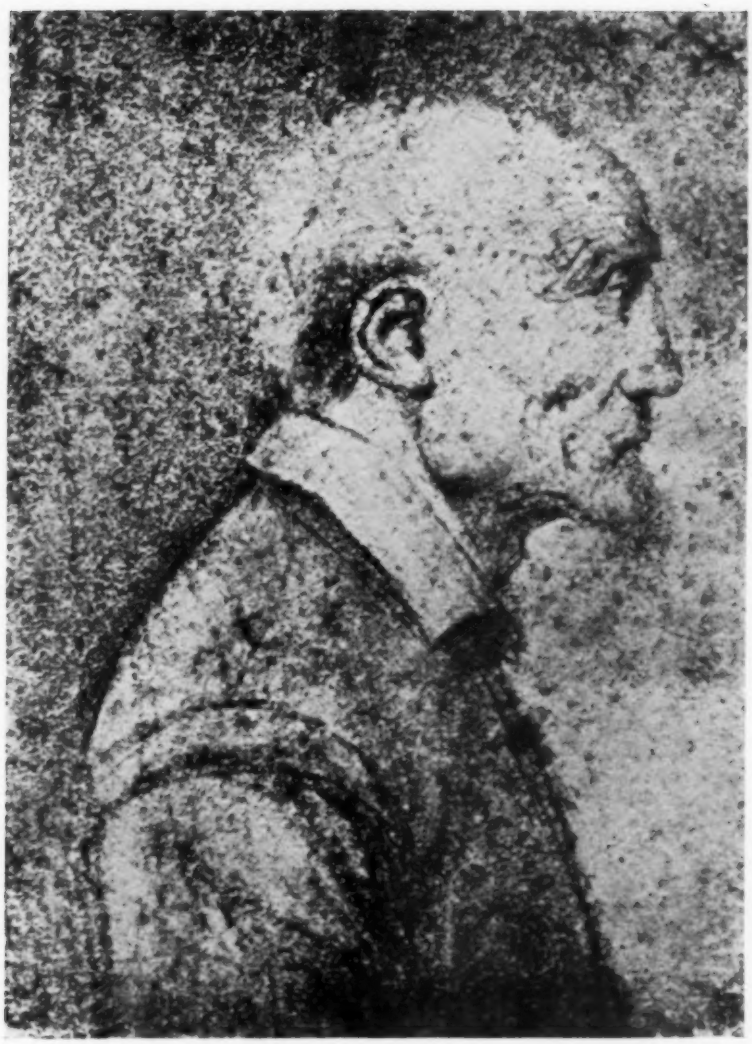

Fig. 10. Pencil drawing of Paré by Nicolas Lagneau. Reproduced from a sales catalogue by courtesy of the Frick Art Reference Library, New York.

Fig. 11. Painting of Paré, attributed to Michiel Janszoon van Mierevelt. Reproduced by courtesy of the Municipal Museum of Fecamp, owner, from the copy belonging to the Royal College of Surgeons.

Here we have an abrupt transition from the representation of a man in his middle years to one of obvious old age, even though Paré was but sixty-five at that time. This same mediocre woodcut was reproduced in the *Oeuvres,* 2d. ed., 1579, and still gives his age as sixty-five. The Latin *Opera* of 1582 and its re-issue in 1583 contain a new woodcut, inscribed aged sixty-eight, showing Paré two thirds full face, unflattering and badly done.

In 1582, the same year as the first issue of the *Opera,* appeared another book by Paré, his *Discours de la mumie,* wherein was contained what Le Paulmier[5] considered the best likeness of the author, the finest of the engraved portraits (Fig. 5). It bears a small plaque, "Anno aetatis 72, 1582," and is ascribed by Le Paulmier to Etienne Delaune. Three years later very similar copper engravings appeared in the fourth edition of the *Oeuvres,* 1585, the one in some copies being dated 1584, aged seventy-five, and signed "Giullis Horbeck," and that in the others dated 1585, aged seventy-five, signed "A. Vallee." Le Paulmier called the latter a "pallid copy" of Delaune's work. All three portray an alert-looking old fellow with sparse white hair and beard, hale still, but obviously past his three score years and ten.

That these late engravings must actually have flattered their original seems to be proved by the single authenticated painting which has come down to us, discovered at the Château de Paley near Nemours by Le Paulmier sometime previous to 1884 (Fig. 6) and now in the possession of Monsieur P. de la Raudière, 39 Avenue Franklin Roosevelt, Paris. Dated 1575 and inscribed, "Ambroise Paré, Pr. Chirurgien du Roy," it has been continuously in possession of Paré's family till close to the present time. Descending from his daughter Catherine (by his second wife) who married Claude Hédelin, Councillor to the King and Lieutenant-General of the bailiwick of Nemours in 1610, it went to her second son, Anne Hédelin, who kept it in his house at Nemours. The last descendant of the family at the time of the Revolution was Louis Le Petit, of Nemours, whose daughter (or grand-daughter) married the Baron d'Aleyrac de Coulanges who was living in 1855 at Fontainebleau. Madame de Coulanges, his wife, who died in 1856, bequeathed the portrait to her nephew, the Marquis Le Charron, owner of the Château de Paley. His daughter, the Comtesse de Guinaumont, (sometime between 1888 and 1895) left it to her cousin, the Marquise d'Espinay Saint-Luc, who in turn bequeathed

[5] Le Paulmier, C. S. *Ambroise Paré d'après de nouveaux documents.* Paris, Perrin et Cie, 1887, p. 136.

it to Doctor Théodore Tuffier about 1898 (no. 334 in the Tuffier Collection), of whom M. de la Raudière, the present owner, is the son-in-law.

The date places this picture as having been painted shortly after Paré's second marriage and in the year of publication of the first edition of his *Oeuvres*. Le Paulmier in his reproduction of it describes Paré as wearing a tunic of black velvet, the top of his head covered with gray hair, sparse and short; the beard, originally brown (auburn?), is scant, scarcely more than moustache and goatee; the eyes are lively, of a yellowish brown color. The date, 1575, he believed to be contemporary, but thought the inscription across the bottom to have been added later. His guess placed the artist in the French school, of the style of Corneille and Du Monstier. M. de la Raudière suggests the possibility of its having been Jan Wierix.

The three other paintings, possibly contemporary, said to represent Paré, are of doubtful authenticity and date. That belonging to the Paris Faculté de Médecine (Fig. 7), reproduced and described by Noé Le Grand,[6] seems definitely earlier than is indicated in its ascription to the nineteenth century painter Durupt. It is believed to have come to them from the Collège de Chirurgie. The dark hair and beard would date the picture in Paré's middle age, certainly a considerable number of years before 1582 when the contemporary engravings show his hair and beard nearly white. This portrait in general does resemble Paré somewhat in later life, but not at all as he appeared with dark hair in the authenticated pictures of him in middle age (Figs. 2 & 3).

The second painting in this group, a particularly beautiful one, came to the Académie de Chirurgie in Paris in 1941 by gift from the Vicomtesse de Montaigne de Poncins (Fig. 8). Belonging to the collection of her great grandfather, Ar. Franc. Marie de Biencourt, who died in 1854, it descended to her in 1914 through her uncle, Charles Marie Christian de Biencourt, owner of the Château d'Azay-le-Rideau where Le Paulmier saw it sometime before 1884. At the time she gave it to the Académie de Chirurgie the picture was studied by M. Malo, Curator of the Musée de Chantilly, and by M. René Huyghe, Curator in Chief at the Louvre, both of whom believed the painting to be a contemporary portrait of Paré, though not signed, and at first attributed it to François Clouet, under whose name it was presented.

[6] Le Grand, Noé. *Les collections artistiques de la Faculté de Médecine de Paris: inventaire raisonné*. Paris, Masson, 1911, p. 46.

M. Malo has since reconsidered this judgment, however, and now is sure only that it is *not* by Clouet or by Corneille of Lyons. Le Paulmier doubted that it was actually of Paré, and asserted that the inscription was modern. Of this latter, there can be little question, since the date of birth given, 1517, would have been recognized by the sitter himself as wrong. There is room for hope that it is an authentic portrait of Paré, however, for in spite of the court dress, the figure possesses much of his personality, and one would like to believe it was done from life when the original, then at his zenith, had been for more than a dozen years the trusted friend and first surgeon to the kings of France.

A third, perhaps contemporary, but more doubtful painting is the magnificent one (Fig. 9) attributed to Pierre Pourbus (1510?-1584?) now in the possession of Dr. Louis Bazy, who inherited it from Dr. Nélaton. Le Paulmier did not believe this represented Paré, but it was exhibited at the Paris Universal Exposition, 1878, as his likeness. If the artist was Pierre Pourbus, the picture would be contemporary, but it lacks the subtle resemblances to Paré in the Académie de Chirurgie portrait (Fig. 8); the moustache and beard are definitely unlike Paré's as portrayed in his books; and placed beside the authentic Paley painting, there seems no possibility of its representing the same individual. The existence of this painting, said to be of Paré by Pourbus, may have had something to do with the ascription of the NYHS portrait to this artist.

One more likeness of Paré which is perhaps contemporary is a small drawing by Nicolas Lagneau (Fig. 10), a reproduction of which, from the sales catalogue of the Valori Collection, Paris, November 25-26, 1907, is in the Frick Art Reference Library. Paré is shown in profile, in the forward-settled pose of age, his head practically bald with a fringe of hair across the back, the suggestion of a scant beard, perhaps only a goatee, and hardly any moustache at all. While the general contour of the head shows some resemblance to the early profile of Paré at forty-five (Fig. 2), and the relative positions of the eye, ear, and nose coincide with this, the angle of the nose and the height of the forehead do not agree. It is possible, however, that the later artist emphasized the shrunken effect of age, enhanced by baldness, lowering the real height of the skull's dome and reducing the actual protrusion of the nose. The drawing has much stronger agreement with the Paley portrait (Fig. 6) in which Paré appears only slightly younger than in this sketch. The artist of the latter, Lagneau, is

described by Thieme and Becker[7] as one of the masters of crayon who worked in the first half of the seventeenth century, bringing out the characteristics of his sitter by his arresting drawing and accentuated and often somewhat caricatured features. A French critic, E. Bénézit,[8] moreover, places Lagneau in the sixteenth century, saying that at the Musée Carnavalet there is a portrait of Rabelais possessing a verity so intense that it seems impossible it could be done from anything but life: the artist must therefore have seen Rabelais, who died in 1553. Further, among other pictures by Lagneau are shown fashions of the time of Henri IV. If Bénézit's judgment is true, it may very possibly be that we have here a hitherto unknown likeness of our sixteenth century surgeon drawn from life. It is unfortunate that the provenance and present whereabouts of the picture cannot be learned.

There are of course a great many representations of Paré of later date, such as that attributed to Mierevelt (Fig. 11), discovered in the Municipal Museum at Fécamp, Normandy, by Mr. C. J. S. Thompson, a reproduction of which was commissioned for the Royal College of Surgeons by Lord Moynihan and described by the late Sir D'Arcy Power.[9] The picture gives the impression of a Dutch burgher of the seventeenth century, and would seem of later origin than Paré's time.

A further painting was reported to Malgaigne[10] by Emile Bégin previous to 1840. The latter said he had before his eyes an oil painting in which Paré was represented dissecting the Franciscan father who was to have delivered Metz over to the imperial forces in 1555,[11] showing him holding the scalpel in his left hand. Bégin said the painting was contemporary and signed. No record of such a portrait can be found in Bégin's published writings, and since he had also described a diary of Paré's which he failed to produce for inspection, his statement concerning a portrait—especially one of such extraordinary interest—is likewise suspect.

The New York Academy of Medicine possesses a painting, said to be of Paré, whose artist and source are unknown. It is dated 1610 and the clothing is of the seventeenth century, precluding the possibility of the portrait's being contemporary. Another

7 Thieme, Ulrich and Becker, Felix. *Allgemeines Lexikon der bildenden Künstler von der Antike bis zur Gegenwart.* Leipzig, E. A. Seemann, 1928, vol. 22, pp. 218-219.

8 Bénézit, E. *Dictionnaire critique et documentaire des peintres, sculpteurs, dessinateurs et graveurs.* Paris, Ernest Gründ, 1924, vol. 3, p. 12.

9 Power, Sir D'Arcy. Archaeologia medica: the iconography of Ambroise Paré. *Brit. med. J.*, 1929, *1*, 965.

10 Paré, Ambroise. *Oeuvres complètes ... précédées d'une introduction par J. F. Malgaigne.* Paris, J. B. Baillière, 1840-41, vol. 1, pp. ccxcv-vi.

11 The siege of Metz occurred in 1552.

painting supposedly of Paré was offered for sale by C. F. Galigher of Cairo, Illinois, in 1936: art authorities consulted at the time believed it to be of definitely later date than the sixteenth century. Other later pictures either reproduce the features of the engravings in Paré's books, or are fictionalized representations placed against the background of various episodes in his career and can have no bearing on the point under consideration here, namely, the identification of the NYHS portrait.

Detailed comparisons of the NYHS painting (Fig. 1) with all the others which have a claim to authenticity (Figs. 2-6) seem to show that it does not represent Paré. If we disregard the date, 1582, and consider that it was made at the age Paré appears to be, around fifty to sixty years old, it should be approximately contemporaneous with the 1561 engraving (Fig. 2) and should then resemble it to some degree. But it does not: the hair grows forward instead of back; the beard is full and thick, completely covering the chin, instead of being sparse on the cheeks and absent on the chin except for a tiny goatee and perky outward curving chin-tuft. The two pictures do not at all give the impression that the artists were portraying the same individual.

If, on the other hand, we accept the date 1582 as establishing the time of the picture, it makes Paré seventy-two years old, exactly the age at which he is shown in what appears to be the best likeness which has come down to us, the Delaune engraving of 1582 (Fig. 5). Here again it seems impossible that the two pictures can be representing the same man. Not only is there unlikeness in hair and beard as described previously, but the nose is quite different in shape. Moreover, the vein on the temple, so prominent in all the later engravings, is not even indicated in the painting.

All in all, it appears equally impossible for this NYHS painting to have been meant to represent Paré either at about middle age, as he seems to be, or at the seventy-two years as dated. We are forced to conclude, therefore, that it is not a portrait of him.

Was the artist Pourbus? According to my art consultant, Dr. Julius S. Held, of the Department of Fine Arts, Barnard College, the attribution to Pourbus is open to doubt. While he believed 1582 to be the date of the painting's origin, he thought it could have been painted by any one of a number of men active at that period, and that it would be safer to call its artist, "Flemish School (possibly by P. Pourbus)."

The Adaptation of the Ancient Philosophy of Medicine to the New World by Jean-François Coste

Translated from the Latin and Introduced by

ANTHONY PELZER WAGENER*

Introduction

THE status of medicine in Virginia when Dr. Jean-François Coste, Chief Physician of the French Expeditionary Force, arrived in America on July 11, 1780, has been described by Dr. Wyndham B. Blanton.[1,2] While the seventeenth century and particularly the eighteenth witnessed notable achievements by a distinguished group of researchers, practitioners, and teachers in England and in the Continental countries of Europe, even there superstitious ideas and practices inherited from the Middle Ages persisted, and quackery, together with unskilled and unsanitary procedures, flourished. Especially deleterious was the fact that eighteenth century medicine was cluttered with a great variety of theories arising from speculations as to the cause and mechanism of disease and its therapy, which were founded upon arbitrary hypotheses, not upon scientifically determined facts.[3]

The situation in Virginia, one which may be accepted as more or less typical of the Colonies as a whole, was rendered worse by existing conditions. In the earliest years of settlement especially, the weakened, often diseased, condition of the individual colonists when they arrived, the natural surroundings and habits of life adverse to health and productive of numerous deaths, the dangers of pioneer life, and inadequate resources for treatment would have made the task of even the most capable physician a difficult one. In the seventeenth century beriberi, scurvy, malaria, influenza, pneumonia, pleurisy, measles, dysentery, typhoid, calenture, and yellow fever existed, often in epidemic form. Smallpox was brought in by slaves imported from Africa.[4] To a lesser extent these diseases persisted into the eighteenth century; especially in

* Williamsburg, Virginia.

1 *Medicine in Virginia in the seventeenth century*. Richmond Va., The William Byrd Press, Inc., 1930.

2 *Medicine in Virginia in the eighteenth century*. Richmond, Va., Garrett & Massie, Inc., 1931.

3 Blanton, *op. cit.* (note 2), pp. 4-5.

4 Blanton, *op. cit.* (note 1), pp. 47-74.

the form of serious epidemics of yellow fever, typhoid, smallpox, malaria, and dysentery.[5]

Among the early colonists who came to Virginia as practitioners of medicine were a few men who held degrees and could rightfully claim the title of doctor. Most of them, however, were merely apothecaries and chirurgeons of poor education, included among the latter being ships' surgeons who settled in America. Matters were indeed improved in the eighteenth century when young Americans, among them many Virginians, went to the foreign centers of medical knowledge such as Paris, Leyden, London, and Edinburgh for professional training. An even more fertile source for supplying capable physicians was the settlement of foreign-born and foreign-educated men in the Colonies. With the establishment of the medical department of the College of Philadelphia in 1765 and of schools of medicine at King's College (1768), Harvard (1783), and Dartmouth (1798), instruction at home became available. Between 1779 and 1782 medical instruction was given in addition at William and Mary by Dr. James McClurg, appointed professor of anatomy and medicine in the reorganization effected by Jefferson. Yet of the approximately five hundred physicians estimated as practising in Virginia at the end of the eighteenth century only about fifty-five held degrees. The greater number had received their training through serving apprenticeships. While many of these men were well trained, possessed natural ability, and proved to be excellent physicians, the opportunity was there for lax standards and much unskilled practice.[6]

Forms of treatment and surgical procedures in the Colonies conformed to those prevailing in Europe, particularly Great Britain. Recourse was had to cathartics, emetics, blisters, and blood-letting. Surgery was confined in general to amputation and trephining. For medicine, reliance was placed widely upon opium and the Peruvian bark. There was, furthermore, a great traffic in herbs and roots. In the Revolutionary period inoculation for smallpox was extensively practised. The apothecary shops, generally kept by the physicians themselves, advertised and sold a mass of proprietary preparations and patent medicines. Besides, the colonials had great confidence in their own ability to prescribe medicines and to effect cures. Consequently self-medication, the

5 Blanton, *op. cit.* (note 2), pp. 50-70.

6 Blanton, *op. cit.* (note 2), pp. 76-86, 207-213.

exchange of medical advice, and the concoction of home preparations went on extensively.[7]

Conditions of disease and inadequacy of treatment were aggravated by the outbreak of the War of the Revolution. Composed of men subjected to changed ways of life, exposed to the inclemencies of the weather, poorly clothed and fed, the American armies suffered severely from disease. From the armies sicknesses spread to the people in general. While there were many able physicians serving in the army, the general run of medical corpsmen, particularly in the rank of regimental surgeons, was poor. Furthermore, inefficiency in the organization of the medical service, constant change of officers in charge, resignations, deaths, and inadequate appropriations for supplies were disastrous.[8] Even before the war inadequacy of proper hospital facilities had been a contributory factor to the prevalence and spread of disease. Located in unsuitable buildings, crowded and unsanitary, they promoted rather than prevented epidemics. Now, as camp sites were shifted or battles fought, the sick and wounded had to be constantly moved without proper transport facilities and housed in any available building. These hospitals, because of crowding and unsanitary conditions in general, proved to be more dangerous for the inmates than the battlefield.[9]

Such, in brief, is the background against which Dr. Coste's Williamsburg oration must be read; an oration delivered as a clarion call to American medicine to accept as guide the therapeutic principles of Hippocrates, principles which had promoted sound medical practices ever since they had been enunciated by the old Greek physician of Cos and his school.[10]

Jean-François Coste was appointed Chief Physician to the French Expeditionary Force under the command of the Count de Rochambeau on March 12, 1780. After receiving his medical education at Paris and obtaining his degree at the age of twenty-two, he had already by 1780 attained distinction as a practitioner and as physician in charge of hospitals at Versoix, Nancy, and Calais.

7 Blanton, *op. cit.* (note 2), pp. 33-34, 40, 135, 167-169, 178-186, 213-219.

8 Duncan, Louis C. *Medical men in the American revolution, 1775-1783.* Carlisle Barracks, Pa., Medical Field Service School, pp. 4-5, 95, 136, 142, 151, 171, 173, 174, 232, 304-305, 313-320, 350, 352, 369-375.

9 Duncan, *op. cit.* (note 8), pp. 20, 62, 66, 101, 112, 118, 127-129, 220-224, 284-288, 322, 355-357.

10 Cf., e.g., the work of Thomas Sydenham in the seventeenth century and that of his followers. Guthrie, Douglas. *A history of medicine.* Philadelphia, J. B. Lippincott Company, 1946, pp. 202-204; Heidel, William A. *Hippocratic medicine, its spirit and method.* New York, Columbia University Press, 1941, p. 138.

When the French troops landed, a large number of the soldiers and sailors were suffering from scurvy, and later on were attacked by dysentery. That they soon recovered their health and that the French soldiers throughout were reported to be signally free from sickness must have been largely due to the sanitary regulations issued by Dr. Coste as to personal regimen, and the location and control of camp sites.[11] While in New England, he prepared for the use of the army a brief pharmacopoeia, the second to be published in the Colonies.[12]

Dr. Coste arrived in Virginia with the forces under Rochambeau and Lafayette. During the siege of Yorktown, he with the Chief Surgeon Robillard was in charge of the field hospital. When, after the surrender, the French troops were quartered in Williamsburg, the buildings of the College of William and Mary were used as the hospital for the French sick and wounded.[13] That Dr. Coste rendered as well assistance in caring for the American sick quartered in the Palace at Williamsburg is shown by a commendatory letter of October 7, 1782 from General Washington.[14] It was while he was in Williamsburg in this capacity that the faculty of the College voted to confer upon him the honorary degree of Doctor as recorded in the Minutes for June 12, 1782 as follows:

> At a Meeting of ye Presidt and Professors on ye 12h June 1782.
>
> Resolved, that a Degree of Doctor of Physic be conferred upon Doctr Coste first Physician to ye French Army-of which ye following is a diploma.

Joannem Franciscum Coste, Genevensem, saluberrimarum medicinae facultatum Parisiensis Alumnum, Valentinensis Doctorem, Voscomii militaris et Arcis Caletensis Medicum—e regiis medicinae Societatibus Londinensi, Ediburgensi, Parisiensi—regii Lotharingorum medicorum collegii socium Honorarium—e regiis Scientiarum artium, et literarum academiis Nanceiana, Lugdunensi, Divionensi—e patrioticis Sueciae et Hessiae, Hamburgensis, Societatibus; ex humana Societati Philadelphiensi; Christianissimi regis Exercitus in America Archiatrum—nobis commendarunt summi artis suae Honores a celeberrimis universitatibus supradictis in eum collati, nec non insignia quae nobis ipse obtulit doctrinae ingeniique sui monu-

11 Blanton, *op. cit.* (note 2), p. 279; Duncan, *op. cit.* (note 8), p. 355. Bonnette, Pierre. "Guerre de l'independance Americaine, Service de Santé du Corps Expéditionaire Français. Coste, médicin chef, son oeuvre; son rôle en Amérique." Extrait de *Méd. internat.*, Feb.-Apr., 1932.

12 *Compendium pharmaceuticum militaribus Gallorum nosocomiis in orbe novo boreali adscriptum.* Newport, H. Barber, 1773. It is a small volume of sixteen pages, fourteen of which are devoted to formulae. Through the courtesy of the Army Medical Library in Cleveland, I have been able to examine the copy in its possession.

13 *William and Mary Quarterly, 2d ser. 8,* 246; Blanton, *op. cit.* (note 2), pp. 277-279. For a description of the hospital see the account of Dr. James Tilton, quoted by John E. Lane, "Jean-François Coste, chief physician of the French expeditionary forces in the American revolution." *Americana,* 1928, *22,* 8-9.

14 Lane, *op. cit.* (note 13), pp. 11-12.

menta. Eundem Joannem Franciscum Coste Medicinae Doctorem renunciavimus et constituimus. James Madison, President; George Wythe, Robert Andrews, Charles Bellini.[15]

At a public convocation held at the Capitol on that day, Dr. Coste delivered the oration here translated. "De longs applaudissements," writes Dr. Bonnette,[16] "saluèrent cette vibrante péroraison; l'assemblée tout entière se leva, acclama l'éminent orateur, qui venait de la tenir sous le charme de sa science et de sa parole."

Upon returning to France, Dr. Coste continued to serve in the military forces of the King, first at the hospital at Calais, then as consultant in the war bureau at Versailles. For a year (1790-1791) during the Revolution he filled the office of Mayor of Versailles, which so jeopardized his life that he saved it only by resuming military duties, now in the armies of the Republic. His subsequent positions included those of Inspector of the Sanitary Service in the Six Military Provinces of the North; Inspector of the Sanitary Service in the Armies of the North, the Center, the Rhine, and the Pyrénées–Orientales; Member of the Sanitary Council of the Armies (1794); one of six officers appointed as inspectors general of the sanitary service of the land forces (1795); finally, with an interlude when he took part in the campaigns of the *Grand Armée,* he was twice Chief Physician of the Hôtel des Invalides, in which position he died November 8, 1819.[17] Upon him were conferred the honors of Commander of the Royal Order of the Legion of Honor and Chevalier of the Order of St. Michael.

Before coming to America Dr. Coste had laid the foundation of his reputation as an organizer and hygienist.[18] His interest lay in the practical application of medicine to the preservation of public health and the curing of the sick, not in research or the promulgation of theories as to diseases and methods of treatment. In a speech read before the Royal Academy of Sciences, Arts, and Belles-Lettres of Nancy, when received into membership on August 25, 1774, he presented many of the ideas elaborated later in his Williamsburg oration.[19] While admitting the need for specialists in medical research and acknowledging the contribu-

15 Cf. also *William and Mary Quarterly, 1st. ser., 15,* 266.

16 Bonnette, Pierre, *loc. cit.* (note 11), p. 19.

17 Cilleuls, Jean des. Un médicin militaire, ami de Voltaire: J. F. Coste, inspecteur général du service de santé des armées; sa vie et son oeuvre (1741-1819). *Chronique méd.,* 1917, *24,* 259-261. For a full review of Dr. Coste's life and writings, see Lane, *op. cit.* (note 13).

18 Bonnette, Pierre. Eloge du médicin–inspecteur Coste à la fête de l'Independance americaine à Versailles. *Press. méd.,* 1919, 655-656.

19 *Du genre de philosophie propre à l'étude et à la pratique de la médicine.* Nancy, J. B. Hiacinthe Leclerc, 1775. I have been privileged to consult the copy in the Army Medical Library in Cleveland.

tions made by chemistry, physics, and botany, he deplored the elaboration of complicated theories, the tendency to apply mechanical theories to explain the physical activities of the body, the multiplication of remedies, and the decline in number of true physicians. His advanced thinking was shown by his advocacy of clinical training within the hospital through observation and experience. As to the medical art itself, he proposed an eclecticism which would combine the best attitudes and teachings of all schools in proper proportion, and with emphasis upon the "golden mean."

Equipped with this training, these experiences, and these ideals for his profession, it was natural that Dr. Coste should be deeply interested in observing the diseases which he found to be prevalent in America, the natural conditions and the habits of life responsible for them, and the status of medical practice. The review of his findings contained in the Williamsburg address supplies a vivid picture as well as a critical evaluation of these. Of greater significance, however, were his challenge to New World medicine to discard the prevalent faults in attitudes and procedures by a return to sound Hippocratic principles, and his suggestions for a plan of training that could make this possible. No proven estimate can be ventured of the influence exerted by this particular speech upon subsequent medical advances in America. Nevertheless, it is true that the modern achievements in medicine were preluded by the rediscovery of the significance of Hippocrates, and that throughout the centuries those physicians who accepted as their function the practice of the medical art rather than the evolving of theories returned instinctively to the Hippocratic principles which Dr. Coste advocated.[20] Furthermore, it is worthy of note that the path pointed out by Dr. Coste has been followed, in general, by medical instruction and practice in America in their progress to that high achievement envisaged by him in his final prayer.[21]

The problem of the historical Hippocrates and of the correct attribution of the various works forming the Hippocratic Corpus

[20] Taylor, Henry Osborn. *Greek biology and medicine*. Our Debt to Greece and Rome Series. Boston, Marshall Jones Company, 1922, pp. 124-138.

[21] See p. 00 below. To quote also Dr. Blanton *op. cit.* (note 2), p. 268): "American surgeons learned valuable lessons by watching the French, German, and English surgeons at work. . . . The Revolution enabled a vast number of American physicians by travel, association, and experience to broaden their medical knowledge and to set up better standards of practice when they returned to civil life. The war was followed by the rise of state medical societies and by a very remarkable improvement in the general tone of medical practice throughout the country."

does not concern Dr. Coste.[22] For him Hippocrates stands as a heroic figure, the "divine father of medicine" from whose work and teachings sprang the enduring influence of Hippocratic medicine as a therapeutic art involving skill and practice as well as knowledge, knowledge which is to be gained through practice and experience, not by obedience to untested hypotheses.[23] For by this method alone could medicine be scientific in the true sense. "The imperishable fame of the Hippocratics," writes Haeser, "rests on the firm foundation of the spirit that pervades their therapy. . . . their reasonable reflection on the object to be achieved, accurate definition of the attainable, calm assurance and care in carrying out the treatment.[24]

It is the Hippocratic spirit primarily that Dr. Coste champions. Specifically, he presents as fundamental to effecting cures adherence to basic Hippocratic doctrines: that health and disease depend upon environment, climate, and seasons of the year as well as upon the constitution of the individual, including age and habits of living and diet, and that success in treatment depends to a considerable extent upon the ability of the physician to understand and interpret these; that through skill in prognosis the physician must be able to anticipate the course of disease; that a unified picture of all available data must be obtained, and the cooperation of patient and everyone concerned be secured; that there exists in every case of sickness a "crisis" which must be recognized and awaited; that disease originates in an unbalance which can be restored by the "vis medicatrix naturae," if the physician will rely upon expectant rather than active treatment. He emphasizes over and over again the value of a sound regimen in habits of waking and sleeping, of activity and rest, and of diet for both the preservation of health and its restoration; a principle fundamental to Hippocratic practice.[25] For his authorities he relies chiefly upon the works in the Corpus entitled *Ancient Medicine; Airs, Waters, Places; The Art; Aphorisms; Law; Breaths; Epidemics;* and the various ones concerned with *Regimen.*

As the text for his address at Nancy,[26] Dr. Coste quoted from the *Decorum* of Hippocrates, Chapter V: "It is necessary to trans-

22 For a succinct discussion of the problem which has engaged the attention of modern scholars see W. H. S. Jones, *Hippocrates, with an English translation.* Loeb Classical Library. New York, G. P. Putnam's Sons, 1923-1931, vol. I, Introduction, pp. xxii-xliv.

23 Heidel, *op. cit.* (note 10), p. 31.

24 Haeser, Heinrich. *Lehrbuch de Geschichte der Medicin,* vol. I, p. 159. Quoted by Heidel, *op. cit.* (note 10), p. 60.

25 Cf. Heidel, *op. cit.* (note 10), pp. 13, 23, 55, 62, 68, 120.

26 *Op. cit.* (note 19).

plant wisdom into medicine and medicine into wisdom. For a physician who is a lover of wisdom is considered equal to a god." The wisdom, or philosophy, that he envisaged as guide to the art and science of medicine was to be one freed from prejudices by knowledge acquired from tested experience. "Medicine must be free. While it remains fixed within boundaries that prevent it from reaching the fuller freedom, it can be nothing other than a slave, even though it swears its allegiance to the most famous masters of the art."[27] In this speech he described the ideal physician in a paraphrase almost of the words of Hippocrates:[28] "He will be gentle, affable, humane, generous. He must command respect; he must be loved. He will not be afraid of compromising the dignity of his profession by practising the amenities of the social virtues. He must not put on the severity of appearance and demeanor associated popularly with the older generation and due to dress. On the other hand, he must avoid the persiflage and inconsequentiality affected by men of light weight, worthy of an actor not of a philosopher. Far from brusqueness, he will avoid the pliability and the complacency which approach close to cheap adulation." In his own personality he exemplified the qualities that he admired. In his eulogy of Dr. Coste, Dr. Willaume said of him: "Son port et sa démarche étaient nobles, ses manières pleines de dignité; sa physionomie grave, son regard scrutateur, sa voix fort et sonore, son langage d'une élégance soutenue, son ton solennel; toute sa personne enfin imprimait le respect."[29] The reading of his oration will suffice in itself to attest his power of literary expression, his soundness of knowledge, and, in its wealth of quotations, the catholicity of his scholarship.

THE ADAPTATION OF THE ANCIENT PHILOSOPHY OF MEDICINE TO THE NEW WORLD

An oration delivered in the Capitol at Williamsburg at an Assembly of the University of Virginia[30] on the 12th day of June, 1782; when, before an approving assemblage of French officers and soldiers, Jean-François Coste, physician-in-chief of the army of His Most Christian Monarch; alumnus of the most health-giving medical faculties of Paris, doctor of the medical faculty of Valence, honorary doctor of the medical faculty of Pennsylvania;

[27] Cf. below, p. 18.

[28] Cf. the *Physician*; the *Decorum*, Chapters III, VII.

[29] Eloge historique de M. J.-F. Coste. Prononcé à la séance de la distribution des prix, le 9 novembre, 1820 à l'hôpital militaire d'instruction de Metz: par M. Willaume, Chirurgien en chef. *Recueil de Mémoires de Médecine, de Chirurgie, et de Pharmacie Militaire*, 1821, *9*, 339.

[30] The College of William and Mary in Virginia.

honorary member of the Royal Societies of Medicine of London, Edinburg, and Paris and of the Royal College of Physicians of Lothringen; member of the Royal Academies of Sciences, Arts, and Letters of Nancy, Lyons, and Dijon; member of the Humane Society of Philadelphia; fellow of the American Philosophical Society; physician of the Citadel and Military Hospital of Calais and of the naval forces of the King, was awarded the degree of Distinction in Medicine,

Leyden, 1783

To George Washington, in arms the father of his country, in loyal devotion her son; a man of unchallenged repute even among his very enemies themselves because of integrity throughout life, tenacity of purpose, steadfastness in hardships, and modesty in triumphs; a man applauded alike by the Old World and his own New World, the author has given, presented, and dedicated this essay, consecrated herewith to the safety of his fellow-citizens.

THE ANCIENT PHILOSOPHY OF MEDICINE BEFITS THE NEW WORLD

Three times and more happy are they who, while obeying the commands of duty and of that consciousness of duty which resides within a grateful and unforgetting mind, are allured as well by affection and by the delight of fulfilling a pleasing task. Happy too are those speakers whose good fortune it is to have the supreme worth of the subject which they propose to discuss coincide with a great occasion; further to have such harmony of situation, time, and place as to win for them as they speak the kindly favor of their hearers.

Medicine must be free. While it remains fixed within boundaries that prevent it from reaching the fuller freedom, it can be nothing other than a servant, nothing other than a slave even though it swears its allegiance to the most famous masters of the art. This I felt within myself, so to speak, from boyhood; this, as youths, my friends and I believed; this, while still a young practising physician, I found to be true. Now that I am guided by reason and some experience I hold no other conviction.

I had hoped, most distinguished professors, to express, when the opportunity came, this opinion of mine concerning medicine freely and openly. "The gods have acted more lavishly and more generously."[31] At this ceremony of selection, when you wish to enrich me by adding to the ancient honors, which in times past have been conferred upon physicians, an award so full of delight,

[31] Horace, *Sermones*, II. 6. 3-4. Footnotes, unless otherwise stated, are by the translator.

so glorious; I know how little, if anything, I owe to myself, how much to your kindly judgment of me, to your generosity. Especially is this so at a time when you have claimed that most brave, noble, and learned leader[32] as your own by the two titles: "guardian and sweet glory"[33] of this universal learning. Can it be that the College, as witness and interpreter of his peculiar goodwill toward me, had decided to bestow upon me some part of that honor which it had so worthily received[34] from a man in whom there reside so many and such great qualities deserving of praise that it was easier to praise countless ones than not to omit even more. For, although the learning and spirit and courage and genius of the man cannot fail to be ardently admired, yet still more is his character beloved.

When indeed next to him—but at how long an interval does not escape me—you bid me to be yours, you surely order me to be a better man. You order that, treading in the footsteps of him of whom we boast as our common patron, I shall, as far as I shall be able, perform whatever service sacred Humane Learning demands; that I shall strive for whatever is best, noblest, and honorable; that the safety of the people shall be for me the supreme law. Thus I shall become closer both to you and to my Maecenas.[35] But the philosophy that we profess warns us to be sparing in our praises of the noblest men, even though they are due. And in no less wise does your modesty, most distinguished professors, bid me to be brief in my eulogy.

[Nevertheless Dr. Coste now proceeds to pay tribute to President James Madison of the College, to the Professors—George Wythe, John Bracken, Robert Andrews, Charles Bellini, and James McClurg—and finally to the Count de Rochambeau for his military achievement at Yorktown. In this connection he quotes and adapts from Cicero's tribute to the service rendered by arms in protecting the pursuits of peace and liberty.[36] He then proceeds.]

It is indeed a source of wonder how the military and philosophic virtues have joined hands to aid in this great undertaking

32 General De Chastellux upon whom the degree of Doctor of Civil Law was conferred on March 1, 1782. See Minutes of the Faculty of the College of William and Mary for that date.

33 Horace, *Odes*, I, 1, 2.

34 When the French forces were to winter at Williamsburg, Washington had requested General De Chastellux to give special protection to the College and its professors. The Marquis showed himself to be both a friend and a benefactor.

35 The famous patron of Vergil and Horace. See Horace, *Odes*, I, 1, 1-2.

36 Cicero, *Pro Lucio Murena oratio*, 10, 22: "Omnes urbanae res, omnia haec nostra praeclara studia et haec forensis laus et industria latet in tutela ac praesidio bellicae virtutis. Simul atque increpuit suspicio tumultus, artes ilico nostrae conticescunt." 14, 30: "Omnia ista nobis studia de manibus excutiuntur, simul atque aliqui motus novus bellicum canere coepit. . . . Quod si ita est, cedat opinor, Sulpici, forum castris, otium militiae, stilus gladio, umbra soli; sit denique in civitate ea prima res propter quam ipsa est civitas omnium princeps."

of the new world. It was the task of the latter to begin the work, of which the completion was undertaken by the former. What more desirable opportunity, most honored hearers, could I find upon which I might more freely present to more friendly ears the theme of liberty than this most notable gathering where so many as are hearers, are either heroes or philosophers.

All that is free, noblest, and honorable, most distinguished gentlemen, is yours or ought to be yours. You are establishing, nay rather you have established the principle of liberty as the law of the New World. Do you yourselves make Medicine also free! It will then confer those benefits which are its proper function. No other system of medicine indeed befits men who are actually free, men who are wise, men who are truly men than that which is bold, vigorous, and based upon philosophy. Search for no other system than that of the divine Hippocrates; for none that is foreign to it. This has won its bright fame from joining experience to learning. In what place, my Hearers, is its praise more timely, more fitting than in this shrine of the sciences and of the noblest arts, at a time when in the eager desire to mingle the useful with the pleasant, a chair has been established for teaching this health-giving art[37]; when our host has created a hospital in the College; when our sick have as their hosts none other than the faculty of the College. While this surely presents a notable example of their peculiar humanity, none the less does it supply a pattern and in truth a symbol of all that advantage in which the medical science might revel if the hospital were always in the college, or rather if there were no college of medicine apart from the hospital. Oh! would that among physicians, teaching might be shaped to the pattern of sound experience and that always experience might be guarded in turn by the light of learning. Thus it would come about that neither experience, so often defective, so often unskilled, nor science, so often useless, so often foolishly boastful, would usurp supremacy, the one over the other in turn—when besides Philosophy has been banished that divine philosophy without which it seems that nothing that is sublime or noblest or good or honorable can ever be hoped for whether by science, by art, or by mankind.

Therefore I think that, if I select as the theme of this inaugural address a discussion of such great importance, it will be an undertaking not unpleasant to my hearers and not unsuited to either place or time. To insure that some orderliness be preserved, it is

[37] The appointment, in the reorganization of the College in 1779, of Dr. James McClurg as Professor of Anatomy and Medicine.

my intention in this presentation to set forth in the first place the pre-eminence of Hippocratic medicine over the systems of healing that have either preceded or followed it; then to show in what respects the medicine that predominates in the New World is unlike that, through reliance upon which the Divine Old Man scaled the fiery heights of heaven. It is the task of Philosophy to untie the knot of this inequality. With Philosophy as our guide, it will not be beyond our power, as I hope, to prove that this older medicine, more than all other systems, is appropriate for the New World.

As I speak to scholars, it would be pleasant to remember the saying that for those who are possessed of understanding a few words suffice. But, carried on by a too abundant flood of words, because the store of thoughts and ideas is great, I fear that I may continue too long. Yet, even though this store is vast, I must have regard not so much for the limits of speaking as for the limits of hearing.

Part One

Just as Agriculture supplies nourishment to healthy bodies, so, as Celsus[38] loves to say, Medicine provides health to those that are sick. In times long past, this art of healing consisted in the knowledge of a few plants by which the flow of blood might be stopped and wounds might gradually close.[39] Afterwards, however (a fact which no one of the philosophers, whom I know, has noticed), when nourishment was sought for the healthy from sources other than agriculture, the knowledge of merely a few plants was insufficient to provide for the sick. A more involved scheme of health, if it is right to term it so, gave an opportunity for more involved diseases; and more involved diseases, for more involved remedies. When "stream and grain"[40] did not suffice for the peoples, gradually increasing luxury tried out foods and tested drinks of more elevated and refined appeal to the taste. And so, as more complicated causes for new diseases appeared, those remedies which "nature had willed to be ready at hand for all, easy to be found, and without cost,"[41] had to be sought farther away, to be tracked out by more remote journeying. Thus by matching in turn remedies with diseases, by distinguishing those that were harmful from those productive of health as trial proved them to be so by

[38] Aulus Cornelius Celsus, author of the celebrated work *De medicina*. He lived probably during the reign of the Emperor Tiberius (A.D. 14-57), but practically nothing is known of his life. One of his sources was the Hippocratic Corpus.

[39] Celsus, *De medicina*, Pro-oemium, 1.

[40] Lucan, *De bello civili*, III, 345-348.

[41] Pliny, *Natural history*, XXIV, 1.

the recovery of some, the death of others, remedies were handed down first to the memory of men, then written down in temples or in the public squares.[42]

The medical art of which Hippocrates was both father and leader, owed its origin chiefly to the observations of common folk. For from these, I must admit, the first physicians, who from this fact were named the empirics, brought forth a certain science of clinical medicine and thus laid the first foundations of the art properly termed medical. Thereafter, while they were attempting to propound explanations of phenomena and to present reasoned physical causes for the action of remedies, the philosophers added to the art the science of medicine. From then on multiplication of systems, like a malignant disease, gave birth to the science and art of the physicians, and at the same time furnished a handle whereby were brought in all those evils that were to be feared from the misuse of science. This was among the reasons why Hippocrates, quite wisely, was the first, as Celsus reports, to divorce Medicine from Philosophy.

That philosophy, communion with which he thus rightly forbade to medicine, constantly creating its systems and filled as it was with daring assumptions and wordiness, belonged rather to the idling dialecticians and sophists than to men dedicated by the very nature of the situation to the curing of diseases.[43] Since, however, the unlearned method of the Empirics was so readily and in truth deservedly scorned among the learned; more quickly than can be imagined the authority of these intellectuals, vocal and proud in its learning, would have arrogated to itself leadership in the practice of medicine if Hippocrates had not established a praiseworthy separation. And this he thought should be established for no other reason than because it had been proven that before his time there had been no Medicine as yet worthy of being so called in its own right; none which possessed in itself a natural quality because of which, while being more simple, it yet might still be more highly perfected and more useful to the human race. For surely no one who has weighed the matter carefully will deny that the Science of Physicians should be distinguished from the Science of Medicine, and that the latter in turn should be distinguished from the Art of Medicine.

42 Hippocrates, *The art*, Chapter V.

43 Cf. the speculations upon life, health, and disease of the Greek philosophers Anaximander, Empedocles, Alcmaeon of Croton, Philistion, Philolaus and others; even Plato. See Jones, *op. cit.* (note 22), vol. I, General Introduction, pp. XLVI-L.

The Art of Medicine arises purely from observation; the Science of Medicine from the knowledge of proven facts as secured from the successful testing of manifested causes and of methods. The term Science of Physicians should be understood as denominating whatever seems to concern the reputation of the physician rather than the direct benefiting of the sick; the emptiness of varied systems; history; too intricate disputes concerning physiology or concerning the chemical causes for the action of remedies. All of them are indeed good; but yet on a lower level and such as are full of danger or can become so if they turn the physician aside from the true and peculiar goal of Medicine, which is health or the restoring of health. For in this way, though he might be able to become or seem to become more learned, more keen, he would be in fact less useful for serving mankind.

In this sense the physicians who preceded Hippocrates knew the Art. That divine old man added the Science of Medicine to the Art. He could also have added the science of Physicians, since he himself was termed as well the great philosopher of his time.

Mere unskilled observation, scarcely worthy of being called experience, was the basis of the Empirics. Theories, learned and varying according to the fickle judgment of the one who taught them, contradictory one of another according to the fashion of times and places, obtained among physicians, even among those in active practice, greater authority than was proper, often to the no slight harm of medicine. In the middle path between the Scylla and Charybdis of these there went forward most safely Hippocrates' "Philosophy of Medicine." This philosophy rests particularly upon the correct diagnosis of diseases and upon rightly distinguishing one from another.[44] It elicits indications—sometimes clear, or at least probable, but always conforming to the attempts or the desire of nature—and seeks to fulfill their implications. "This is the work, this the task."[45] All other procedures are always and everywhere makeshifts. For if the physician has had the power

[44] The Hippocratic School stressed rather *prognosis*, the working of a detailed and comprehensive exposition of the symptoms and course of acute disease which enabled them to forecast what would happen in different diseases and at different stages of a disease. "I hold that it is an excellent thing for a physician to practice forecasting. For if he discover and declare unaided by the side of his patients the present, the past and the future, and fill in the gaps in the account given by the sick, he will be the more believed to understand the cases, so that men will confidently entrust themselves to him for treatment. Furthermore, he will carry out the treatment best if he knows beforehand from the present symptoms what will take place later." (Hippocrates, *Prognastic*, I. Translation by Jones, *op. cit.* (note 22), vol. II, p. 7). See Taylor, *op cit.* (note 20), p. 28; Jones, vol. II, Introductory Essays, pp. ix-xiii.

[45] Vergil, *Aeneid*, VI, 129: "hoc opus, hic labor est."

to recognize, he will have the power likewise to cure.[46] From this point of view Hippocrates will by no means have excluded Philosophy from Medicine. Nay rather he has decreed that Philosophy should be an adjunct to the health-giving Art. It is fitting that I use his own words. "It is necessary to transplant wisdom into medicine and medicine into wisdom. For a physician who is a lover of wisdom is considered equal to a god."[47]

Hippocrates was absorbed with matters that pertain to the Art and Science of Medicine and not greatly with those that concern systems or, as I have termed it, the Science of Physicians. It must be conceded frankly, as well, that where he is a theorist, there he is perhaps also mediocre, as in his works on the *Generation and Nature of the Child;* or when he claims that the human mind is located in the left ventricle of the heart and governs the rest of the living organism.[48] This mediocrity is excused, however, by his ignorance of the circulation and of the "insensible perspiration," the latter demonstrated by Sanctorius,[49] the former by the immortal Harvey. From the thousand discoveries that have been made since Hippocrates, you will find that scarcely more than these two have been of any value in the Art of healing. Many, in fact countless, have been the discoveries; many things have been thought of, devised, fashioned, sought after. The Science of Physicians has argued both for and against these manifold concepts from the time of Hippocrates up to our own. With what benefit either to the Art or to mankind?

"There is nothing," says Tully,[50] "nothing so irrational as not to have been said by some one of the philosophers." How much more truly could this be said about physicians and medical matters. Let this be proved by the excursion which, with your consent, I shall make as briefly as I can into the history of medicine.

[Dr. Coste reviews next the conflicting doctrines and practices advocated and employed by philosophers, physicians, and national schools of medicine from Greek and Roman times to his own. He points out how empty and fantastic the majority have been; how they became obsolete, only to be brought to life again and to pass once more into oblivion. He then continues.]

[46] Hippocrates, *The art,* Chapters V-VII, XI.

[47] Hippocrates, *Decorum,* Chapter V.

[48] In the work *The heart,* 33.

[49] Sanctorius Sanctorius (1561-1636) of Padua, first of the iatro-physicists; noted for his study of what he termed the "invisible (or insensible) perspiration," a study which constituted pioneer work in what is now called metabolism.

[50] Cicero, Marcus Tullius. *De divinatione,* II, 58, 119. "Sed nescio quo modo nihil tam absurde dici potest, quod non dicatur ab aliquo philosophorum."

Meantime the crowd of those who are striving to cure and of those who are sick, now attracted and now repelled, is hurried hither and thither. While experiments and cures are called from every direction to witness, ignorant of where or in whom to place its trust, it knows not "whither the fates may lead, where it may be granted to find rest."[51]

Where, most illustrious hearers, must we find a resting place? I am confident that already you foresee the answer—in Hippocrates. Even though amid this throng of contradictory ideas, systems, suppositions, paradoxes, the theories of the physicians shall fall crushed by the all-destroying storms of beliefs; the ruin as it strikes will leave the fearless column of pure knowledge unshattered. For, no matter how many diverse ideas physicians of every age and every land have advanced upon almost everything that pertains to the various details of medicine, upon this one judgment nevertheless they as firmly agree that by taking Hippocrates, and him alone, as leader and guide they need have no fear. To him surely belongs such a claim as was made by Cicero for the preeminence of the Roman race.

That Philosophy only must be accepted in Medicine which, even as it belongs to all places, belongs likewise to all ages. And this in fact can be said of few men, if we except the Divine Father of Medicine. From him neither the Art nor the Science of Medicine has even slightly departed. He himself knew anatomy as far as he could at that time, made it of the highest importance, persuaded and took care that it should be learnt by those devoted to the healing Art. He introduced the concept of the bodily functions in a healthy state, in order that he might fit himself to diagnose more readily the character and degree of injury in sickness, and thus to cure it. Chemistry instructs us concerning the primary constituents of bodies better than these could ever have been demonstrated in past times by the teachings of the old non-experimental Physics; nay even of experimental Physics. The Divine Father would have welcomed this science if it had belonged to his time, not merely as it were, from the threshold. Yet he would not have introduced its use into medical practice except "with a grain of salt," as will be mentioned later when a word or two is said about the use and misuse of Chemistry among physicians.

It is now my intention to set forth the features of that Philosophy of Medicine which are especially noteworthy. From what

[51] Vergil, *Aeneid*, III, 7.

source can they be taken better than from the Father himself, who can never be sufficiently praised. I mention a few fundamental principles of Hippocratic practice, principles of the greatest weight.

"Life is short, the Art long; opportunity fleeting, experience treacherous, judgment difficult. The physician must be ready, not only to do his duty himself, but also to secure the co-operation of the patient, of the attendants, and of externals."[52]

"Medicine is an adding and subtracting; the subtracting of those things of which there is an excess, the adding of those that are lacking. Depletion cures repletion; repletion, depletion. Rest cures fatigue; fatigue, rest. Opposites are the cure for opposites."[53] This nature has taught us.

"The remedies of nature are the chief remedies of disease" and "the very art itself of medicine abides in nature." From observations of crises and of the coctions resulting from these, of the days upon which aggravation or abscession occurs, there have been born practical rules for active treatment or for avoiding this, for advancing or augmenting, for retarding or suspending the efforts of nature, to result in either the recovery of the sick or his death.[54]

All of the *Aphorisms* pertain to establishing diagnosis and prognosis[55] and to interpreting indications of either a natural crisis or of the need to bring about evacuation by medical Art.

"Matters which should be evacuated must be drawn off along suitable passages, in the direction whither they especially tend."[56] "If they are such as should be purged, it is beneficial and the patients bear this well; if not, the opposite occurs."[57] So also in the evacuation of the vessels, "Concocted matters, not crude ones, should be purged, and that not at the beginning of diseases, unless there be orgasm, which generally does not occur."[58] "The evacuations should be judged not by their abundance, but by whether the proper ones come out and whether the patient bears them easily."[59]

Quite often a period of waiting is preferable to active treatment. In diseases "the divine factor," by which Hippocrates

52 Hippocrates, *Aphorisms,* First Section, I (Jones, vol. IV, p. 99).

53 Hippocrates, *Breaths,* I (Jones, vol. II, p. 220).

54 Hippocrates, *Epidemics,* I, Second Constitution, VIII, XI; *Breaths,* I (Jones vol. I, pp. 158-160, 162-164; vol. II, pp. 226-228). For the doctrines of "Crisis" and "Coction," see Jones, vol. I, General Introduction, pp. LI-LIII. "Coction" is 'the action which so combines the opposing humors (Jones, *ibid.,* pp. XLVI-XLVIII) that there results a perfect fusion of them all."

55 See note 00, p. 00.

56 Hippocrates, *Aphorisms,* First Section, XXI; *Humours,* I (Jones, vol. IV, pp. 107, 63).

57 *Ibid.,* XXV (Jones, vol. IV, p. 109).

58 *Ibid.,* XXII (Jones, vol. IV, p. 109).

59 *Ibid.,* XXIII (Jones, vol. IV, p. 109).

understood the "Helpful Powers of Nature," must be fully considered. "Do not disturb a patient either during or just after a crisis, and try no experiments, neither with purges nor with other irritants, but leave him alone."[60] "When patients are suffering from a periodic exacerbation offer nothing and force nothing, but lessen the nourishment before the crisis."[61]

"When a crisis occurs, the night preceding its occurrence is uncomfortable for the patient but the following one is frequently more comfortable."[62]

Upon these few indications, clear and in harmony with nature, hinges all of practical medicine. Relying upon these principles alone, "by means of the medical Art the sick free themselves from the worst evils, sufferings, pain, and death."[63]

Thus the Divine Father has reduced the diverse manifestations of diseased bodily functions to a few general types. From them he draws a variety of symptoms, but few in number; a variety of remedies, but few in number. For the active curative agents employed by Hippocrates are confined almost entirely to the group of the evacuants; and those he employs only at the bidding of Nature and in imitation of her. Those remedies, called Alterants, when properly named, he scarcely knew of, rarely advised since they are not derived, so to speak, from natural sources.

In regard to the rules of hygiene for both the healthy and the sick he was deeply concerned and authoritative. In the matter of food and drink you will nowhere find better directions than in his work on *Regimen in Acute Diseases.* His noble work on *Airs, Waters, Places* is known as the foundation of all that is good in subsequent writing on the topic. He believes that Astronomy contributes not a little to the Art of Medicine, that the divisions of the year and the seasons should be considered, and that the chief changes of the seasons should be observed. Again and again he maintains that various epidemic diseases originate in relation to the varying conditions of the weather.[64] The physician who is correctly aware of these will be able not only to predict diseases that are about to occur, but also to take precautions against them and thus to become the more acceptable and serviceable to his fellow citizens in proportion as he has exercised greater care for the public health. Thus through reliance upon his knowledge of the

60 *Ibid.*, XX (Jones, vol. IV, p. 107).
61 *Ibid.*, XIX (Jones, vol. IV, p. 107).
62 *Ibid.*, Second Section, XIII (Jones, vol. IV, p. 111).
63 Hippocrates, *Breaths,* I (Jones, vol. II, p. 227).
64 Hippocrates, *Airs, waters, places,* II (Jones, vol. I, p. 73).

locality and the winds, Hippocrates by firing the woods prevented the plague that was threatening Athens.

Now we must consider in a few words what his method was in training his pupils. He himself says: "Many are physicians by repute indeed and in name, but few there are in reality and by their work."[65] Whoever wishes to secure truly for himself a knowledge of Medicine must realize his wish with these following guides: natural ability, teaching, a place suited for studies, instruction from boyhood, diligence, and time. First of all, then, there is need of natural ability, for if this stands in the way, all is in vain. If in truth nature points out the path to what is best, there follows the teaching of the Art. This must be acquired for oneself, intelligently, by training from boyhood in a place rightly suited for learning. "Moreover it is necessary that there be applied zealous effort during a long period of time, in order that learning, made pregnant as it were, may increase happily and bring forth abundantly its ripe fruits."[66]

Do you not think that Hippocrates spoke to all when he wrote thus in his work on *Law?* Nor is this a fish to be caught by all. This Medicine can become the possession of but few men and those of sound mind. It is particularly the possession of those who train others in it. Let it be within their power to choose those for whom a training of that kind is fitting and let them select for teaching only those worthy of being taught. Let these be tested as a matter of course. Let there be trial of their talents, their natural ability, their previous essential training in Letters. Only after these have been approved and have given hope of success, should they be adjudged as suited to be taught the Art and Science. "For these," the Master said, "are holy things, to be revealed and communicated to men who are holy. For the profane to know them, until they have been initiated into the mysteries of Science, is in truth unholy."[67] But in the thinking of the divine Old Man those should be considered as profane who possess from nature a character unformed, unconstrained or incapable of being constrained, unimproved, or incapable of being improved by even the persistent toil of study or effort. For these persons will be taught absolutely nothing and will accomplish nothing "contrary to the bent of their natures."[68]

65 Hippocrates, *Law*, I (Jones, vol. II, p. 263).

66 Hippocrates, *Law*, II (Jones, vol. II, pp. 263 and 265).

67 Hippocrates, *Law*, V (Jones, II, p. 265).

68 "Invita Minerva." Horace, *Ars poetica*, 385.

Since Hippocrates believed that the road would be long if instruction were carried on through the imparting of rules, and might be shortened and productive if developed through illustrations, he was most sparing of the former, most lavish with the latter as far as he could be from his own active practice and the observations of predecessors. In the looks of the sick, the pulse, the examination of all outward symptoms through careful daily inspection, he had a textbook to be studied night by night, and day by day. Thus he taught those who were desirous to become physicians what special qualities resided in each season of the year, what diseases; what that was advantageous and disadvantageous pertained to the various seasons in respect to their natural qualities or to sicknesses inherent in them; which disease was chronic and fatal, which, though chronic, was yet curable, which acute disease was fatal or curable. From this knowledge both a sequence of critical days could be observed and the power to predict them is ready at hand. In addition from it there may be learned for whom a diet should be prescribed, when, and of what kind.[69] From this method alone Medical Education must be derived. "For he who has learned these things, and who uses them rightly and understandingly cannot make mistakes in the Art."[70] He possesses a knowledge of the Medical Art and depends little upon chance. He will also administer the Art rightly without recourse to chance. For the Art of Medicine thus handed down excels in its own factual knowledge. "It is wholly strong. The precepts upon which it rests are infallible and therefore seem to require the least reliance upon chance."[71]

I do not hesitate to admit frankly that, whenever our Art makes use of conjectures—for surely the limits of human intellect preclude the hope that anyone can forever be right—"A frank admission of real error," as Celsus says, "is the fitting act, especially in such a matter as is handed down for those who come after to use." A man of integrity and learning has never been ashamed and never will be ashamed to recognize and confess his own mistakes in order that others may be warned of these and like ones that should be avoided. The Divine Father candidly admitted that he had regarded sutures of the skull as fractures.[72]

69 Hippocrates, *Epidemics*, I. XXV-XXVI; III, XVI (Jones, vol. I, pp. 183, 185, 257); *Airs, Waters, Places*, II (Jones, vol. I, p. 73).

70 Hippocrates, *Epidemics*, III, XVI (Jones, vol. I, p. 257).

71 Hippocrates, *Places in man*, 124.

72 Hippocrates, *On wounds in the head*, XII.

Thus closer and repeated observation, that touchstone by which alone the true must be separated from the semblance of truth, the probable from the actual, has corrected a prejudged belief. How great authority Hippocrates attained by this procedure! He admitted nothing in practice except that which nature either demands or has taught. That which is simple demands and teaches the simple offerings of truth. As for the complications of Art and Science—disapproved by some, approved by others—since concerning these not only the unlearned but even the learned so greatly disagree, it can surely happen on the one hand that not one of these beliefs is true; on the other, it may scarcely happen that more than one can be true. "None," says the Prince of Medicine, "none of those who have written before us should be blamed because they could not make complete discoveries. Nay rather, all should be praised because they attempted certain researches."[73] Often in fact the Moderns have been led by way of error into the path of truth. For in dealing with physical problems particularly, there does not usually come to mind as easily why something is true as why it is false; and it is easier to tell what is not than what is, what is not perceived than what is perceived. Therefore, by taking nature as their sole guide Physicians can approach the investigation of the true and the real by an easier and shorter road. "Never has nature said one thing, philosophy another."[74] If the physician wishes to be considered the helper of Nature, let him be simple even as Nature. Here belong the fundamental symptoms of diseases, the prognostic signs, measures approved by good usage, established by successful tests, well known to all physicians of all lands and ages.

But consider the countless conjectures fashioned by the intellect concerning the remote, nay even the immediate causes of diseases, conjectures known or intrusted to only a few. As regards these, so diverse are opinions, so at variance with one another that what one person denies is maintained by another according as a particular influence or particular circumstances prevail in the argument. In respect, likewise, to the use of drugs, if you except the tenth part of those most generally employed, a remedy extolled in some one region or period or book under changed conditions is scarcely termed a medicine, more often a poison.

Not so in regard to the cutting of a vein, purgings, or a system of diet set up in accordance with the laws of healing. When the

[73] Hippocrates, *Regimen*, I, 1 (Jones, *op. cit.* (note 22), vol. IV, p. 225).

[74] Juvenal, *Satire* XIV, 321.

head is heavy and in pain, as the veins swell there often comes a healthful hemorrhage. The observation of this fact has taught the value of vein-cutting. Often vomiting or diarrhea breaks the so-called putrid fever. From the former originate the emetics; from the latter, the purgatives. Thirst has taught the value of drink; hunger, that of food. The bitterness of the bile suggests the acids; nausea and the loss of appetite are the parents of diet. Everything else has been accumulated for the universal harm of mankind by men more concerned with searching out a science of physicians than with practising the Art of Medicine. It was quite easy for such a one to supply an argument for any theory he might come across or to graft something upon a formula of his predecessor. Surely this was less difficult than to observe symptoms more accurately by either following up those noted by older physicians or uncovering their mistakes. He who clings to the footprints of the school with its contentions and its dictates, and thus shows himself to those he meets as a living syllogism or textbook rather than a physician, is no Master of the Art but an artisan. The test of the physician is not, in fact, whether he has amassed information from his deep researches, but whether he has acquired from the common fund knowledge that is sound and well mastered, as anyone may hope to do. Practical medicine consists peculiarly in *searching out true indications, not in thinking out remedies.* Sydenham[75] has complained that the Hippocratic plan of cure, built upon the recognition of conjoined and immediate causes, is being abandoned to the ruin of the Art of Medicine. To use his own words, "fruitless explorers devote themselves to finding ever remoter causes." Whatever is simple is to that same extent safe and worthy of being received; with nature as leader or director, as teacher or guide. Beware of touching whatever is compounded, mixed, and intermixed. It is the work of art, the work and the task of art; the disgrace of art; but so often suffering for the sick!

It is acknowledged that—with the exception of the writings of Hippocrates and the Hippocratics—physicians everywhere in their practice of medicine make use of even less than the thousandth part of medical works. In fact, many of them are acquainted with not even a hundredth part of the remedies generally accepted; and, of those that they do know, they have never put the hundredth part to actual use. Medicine, therefore, can function quite apart from so many books, from that vast equipment of widespreading

[75] Thomas Sydenham (1624-1689), the greatest clinical physician of the seventeenth century in England.

learning, from that extensive apparatus or rather hodge-podge of remedies—Materia Medica as they have termed it in their unwillingness to use an apter name. For in Medicine, if anywhere, there is need of knowing much but acting sparingly; as was the wish of Baglivi,[76] by whom, unless memory fails me, I think it was said: "I can practise medicine without pharmacy, but I know not how to do so without Hippocrates."

But now, since, as far as my powers have permitted, the preeminence of that Divine Father in both his teaching and his practical procedures has been established; it remains that I should discuss and prove how both of these befit the New World far better than all other theories and systems of healing.

Part Two

Whoever surveys with philosophic vision the vast regions of this boundless New World can easily understand by confirmed proof to what extent their cultivation and the spread of settlers have contributed to correcting the primitive corruption of the atmosphere itself. In the northern regions are evidences of previous conflagrations and of fiery heat; in the southern regions, signs of sea and waters; while the middle regions possess certain native characteristics, if it is proper to term them thus. These thrust themselves so unmistakably upon the eye of the skilled observer, are so clearly depicted in their proper colors that there can remain scarcely a doubt as to the formation of any particular region. It is easy to judge that at first the atmosphere was polluted and of the worst character. For at that time the action of the sun was suited to draw up into the atmosphere and hold there in suspense the exhalations from minerals, woods, and swamps and those produced by the dead bodies of reptiles, birds, or quadrupeds, rather than to purify them in their ascent. Besides, credence must be given to the accounts which have been handed down of the many harmful properties of the sky and atmosphere that had prevailed in the New World before its exploration by Europeans.[77]

[76] Giorgio Baglivi (1668-1706), Professor of Anatomy at Rome. A brilliant clinician and teacher; one of a group which attempted to reduce the rules of healing to a series of formulae.

[77] For a succinct review of the opinions held by French philosophers of the eighteenth century (such as the Count de Buffon and Abbé Raynal) upon the unfavorable climatic environment, and the degeneracy of animal and human life in America, together with the defensive arguments by American statesmen (including Jefferson) and philosophers, consult Gilbert Chinard, Eighteenth century theories on America as a human habitat. (*Proc. Philos. Soc.*, 1947, *91*, 27-57.) See also Boorstin, Daniel J. *The lost world of Thomas Jefferson*. New York, Henry Holt and Company, 1948, pp. 100-104.

Gradually, however, the woods were cut away; the vast, continuous stretches of forest were divided up and destroyed; bodies of water previously sluggish were confined and contracted within narrow channels and, as they increased in volume, force and swiftness, were made to flow into the larger and more rapidly moving streams. The earth, which previously had been productive of poisonous and monstrous growths, now mastered by hard toil and by the blows of sturdy mattocks as they rose and fell, was taught and compelled to furnish hospitality to grain and men, in compliance with their will. Gradually, without being noticed, the procreation of poisonous animals and vegetation ceased, or at least was greatly lessened. The construction of dwellings, the establishment of villages, the founding of cities were begun. Among these causes of improvement, there should not be omitted the achievements and contributions made by fires which are regarded as so essential in preparing, establishing, and promoting cultivation. From these causes and others that have been previously spoken of, the action of the sun became more direct; its power of attraction was rendered stronger and more intensified, and freer access was given to the winds. Thus a mutual, simultaneous, and supplementary contribution was made toward improving the air by setting it in motion and correcting its impurities.

How great a change has been effected in the atmosphere which we now breathe from that which prevailed in early times is too evident to need proof. Yet the same belief with regard to the adverse properties of the atmosphere as was held by the earlier arrivals from Europe, due indeed to the situation existing at that time, has persisted. Nor has the opinion of either the sick or of the well, nay even of physicians themselves, ever made a sufficient effort to refute a prejudice of this kind. For this attitude rather than a methodical approach promoted the ease and kept safe the personal reputation of the latter group; while, on the other hand, it favored the indolence or intemperateness of the former. For, in truth, if mistakes in the use of food or drink, in habits of waking or sleeping, in periods of rest or activity, in mental conditions had been blamed, then a more temperate and healthy way of life would have had to be followed, a thing which they had already long since prejudged as being unpleasant. Rules concerning these matters would have had to be formulated by physicians. Surely it would be easier for both groups to attribute every evil to the fault of the atmosphere. Thus it never occurred to the minds of the sick to lay

the blame for unsuccessful results upon the ignorance of the physicians; nor to the minds of the physicians to blame the wrong habits of the sick. From both sides the power to endure was called upon for help. Not the endurance of the philosopher by which "that which it is forbidden to correct becomes lighter,"[78] but that negative endurance which does not dare to know, and which, even though it could play a victorious role if awakened, yet because it is held down by the weight of an unthinking and dearly cherished slothfulness, must rather perform the part of the conquered.

Most certainly, to one who ponders the situation more attentively, it will become apparent that a great share of those troubles which have been attributed to the faulty atmosphere is due entirely to many other more manifest causes. If anyone carefully investigates the characteristics of diseases that are either sporadically or epidemically prevalent in America and inquires carefully into the nature of those that are endemic, he will be convinced that there resides in the atmosphere much less aptitude for producing them than resides in the bad habits of eating, drinking, and dressing that prevail among the people; in their faulty scheme of waking and sleeping, in the periods devoted to rest and activity, in habits of secretion and excretion, in mental conditions. For these have been established on a plan quite other than that which should be followed. All of this is very easy to test if we look for that analogy which we know should be recognized as existing between causes and effects. We should see whether the popular tendency toward physical illness, if there is any such, does not spring from what could justly be termed a moral tendency. For this latter, far from resisting the former as it should, favors rather the very physical tendency by which it is most suitably detected.

Now, if there is any fault in the atmosphere of the New World which can to any degree be prejudicial to sound health, it must certainly be ascribed to its excessive humidity. Both the unlearned and the learned are of the opinion that this humidity must be attributed to vapors rising from the sea and from waters of every kind; while the leaves of the trees and of the forests, and the soil itself in which they grow, contribute to the condition. As the trees and the forests contain hidden within themselves a source of constant evaporation, so in turn they have been endowed with an attractive and absorbent force, suited to increase the harmful humidity of the atmosphere by silently augmenting it. By the more

[78] Horace, *Odes*, I, 24, 19-20.

recent teachings and discoveries of chemistry, however, there has been demonstrated how much benefit vegetation confers upon that part of the atmosphere which is termed the fixed air, where because of the absence of movement are produced all those ill effects that are ascribed to it—how much benefit, I say, vegetation confers by absorbing or correcting, in fact by correcting because of absorbing.

The ill effects, therefore, that the forests produce, they also take away from us. For the earth, if too bare and empty of trees, as we know to be the case in Spain and in the islands of our own America, would be productive of no less danger. And so, if Americans are wise the result will come about that, while care is taken that there by no harmful excess, a quantity of forests and trees will be assured sufficient to improve the healthfulness of the atmosphere.

All of you, my most distinguished hearers—I address you in particular, my own fellow-countrymen—have observed the sudden and widely contrasting changes in degrees of heat that we experience here. As you have observed this, no less have you complained. Your observation accords with your experience; but, and I crave your indulgence, your complaint does not accord with our experiences. For, granted that these so frequent and so widely contrasting variations in degrees of heat do exist, what has been in fact, I ask, their power to cause acute diseases? When, after the south winds have been put to flight, the cold north wind has so often seized control, it did not with its blasts bring unexpectedly upon you and your soldiers, did it, those true forms of pneumonia, those cases of pleurisy, those piercing pains in the lungs which are usually produced in our regions by the treacherous troop of north winds? It is surely likely that the pores, being thus alternately closed and opened in turn, supply a protection against harm which might arise from either one or the other condition. Which experience, unless I am mistaken, teaches us a fact rather more important. It warns us that the well-worn and so repeatedly alleged cause of acute diseases, attributed to the replacing of the warmer by the cold air, acts perhaps more sparingly and more rarely than the doctors of Europe have supposed and still suppose. For why, from a like cause, should one and the same effect result so frequently in France or in England, but so rarely in America? Observe how an explanation for the difference may be sought from a more fundamental reason. In America the degree of warmth is subject to many

changes. But scarcely any change is noticed in regard to the respective weight of the Atmosphere. Meteorological observations carried on for twelve years correctly and with the proper diligence and integrity have revealed this fact to the noted president of this college.[79]

In this fact lies the explanation of why those variations of heat or cold, although frequent, yet seem to have so little effect in causing acute diseases, and of why, perhaps, these same diseases rage fiercely in our own lands. Is not the conjecture plausible and in fact of some importance that so many serious diseases are due to the inequality in the weight of the atmosphere rather than to changes from cold to hot, or from hot to cold? For the laws that govern operations of the bodily functions provide that the air enclosed within the human body shall remain, through a matching of its force, in balance with that without. This suppositional explanation is not at variance with the theories of Physics, with experience, or with the teaching of Sanctorius,[80] than which there is none of greater authority in this matter.

Indeed, if the diseases which creep up upon the inhabitants of this continent rather than break out among them were to be ascribed to a certain peculiar fault of the atmosphere, an epidemic attack or an endemic condition would affect no less foreigners and those unaccustomed to either the climate or the weather conditions. But the truth of this supposition would by no means be attested by experience. Furthermore, what has happened to our army bears witness to quite the opposite; in that our soldiers have had to contend with not even half of the diseases from which, under similar conditions, they would have suffered in France. And, even though the symptoms might be more severe, yet we have observed that they have been dispelled for the most part and most often quite quickly, safely, and with a happy result by a wise process of waiting rather than by rash and untimely active treatment.

The Canadians have learnt the necessary precautions to take against inconvenience or injury caused by excessively cold atmosphere. On the other hand the people of Georgia and the two Carolinas are not ignorant of what precautions should be taken against the dangers of excessive heat. Yet I could wish that our

[79] James Madison, Professor of Mathematics and Natural Philosophy. In a note Dr. Coste cites similar observations made at Philadelphia, at Trenton in Delaware, and on the islands of the West Indies.

[80] He invented the first clinical thermometer, a pulse clock, and a balance for estimating the weight of the "invisible perspiration" upon which he laid great stress.

soldiers who perform night guard duty in any section whatsoever of this republic be warned that the risk of injury from suppression of perspiration at the season of the barking of the dog-star is greater than that which threatens them in the depths of winter. In the latter season there is fear that the cold of night may bite into those who are too little cautious. In the summer season, however, the same protection as that provided against the fierce attacks of colder weather will keep safe the health of the soldier on night duty; that is, the greatcoat of the sentries.

Americans know and attest the fact that the water from springs and streams is superior to that from other sources. Yet, as in other matters that concern health, they are easily led to follow the worse course, especially when it is the easier; and they use chiefly water drawn from ponds and wells, seldom that from streams, and scarcely any from springs. And yet, not at all rarely do springs and running streams meet the traveler. Besides, even though springs, properly so-called, were lacking, since pools, swamps, or streams are ready at hand, they would be faced by scarcely any difficulty in creating artificial ones. Channels, either covered or better open, leading for a long distance from these and formed by massive dikes, could conduct the eagerly downrushing water into certain common basins, of varied capacity as determined by need.

The kinds of water about which we are speaking are impure from the same fault with which physicists have charged the water from wells of every age and land. They are raw, so to speak, and hard, and heavy to the stomach because of the sediment of earth with which they are loaded down. Since, among the various corrective means which can be applied, none can be found better than the heating or boiling of the water, or a change in its properties affected by some form of aromatic or spirituous agent, these few need only be mentioned in passing, as they are all known and employed. For the natural impurity of the water will cause less harm than excess in drinking it. A sufficiently wise and careful use would be made of it, if it were used sparingly enough.

In order that the explanation of the existing state of affairs may become easier, we must for a short while look into what constitute the more usual physical characteristics and more habitual regimen among Americans. You will find them to be endowed with a spontaneous looseness of the fibers or, as I should better and more truthfully say, suffering from a softness and weakness of these. Hence arises that pliancy which adds to the stature what it takes

away from strength of nerves, muscles, and organs. There result an increased sluggishness in the passage of solids into liquids, and a viscosity in their circulation. From both of these conditions, what a series of evils ensues! There comes about a lessened elasticity of body and mind. Thus it happens that it is the lot of a few to arrive at that degree of strength and dignity which Nature would wish to be attained through her gift of a facile and clever intellect, and through the superiority of a fair and finely formed body.

In Europe we use and enjoy a very great diversity of both drinks and foods. From this pleasant variety, of which our ancestors had not approved, we believe there results much of benefit, provided that due measure is not exceeded. But if the people of any region wish to adopt one peculiarly individual norm of living, surely they ought to choose the one which would be the most suitable for them. Those who suffer from a weaker structure of the fibers and from a sluggish circulation of the Humors have to overcome an inertia of digestive powers and of the vital action. They exhibit a pallor signifying a loose and watery condition, so to speak. On the other hand the ruddy complexion, for which they should seek, and a more vigorous mind in a more vigorous body would furnish clear proofs of a livelier circulatory movement, of more pliant fibers, of organic and digestive strength productive of well-being and happiness.

What, however, is more fitted to increase this tendency toward laxity than the kinds of foods and especially of drinks that Americans abuse rather than use. No one is ignorant of how greatly their watery drinks, for the most part warm and frequently imbibed, hinder digestion, perspiration, and the building up of strength. Such a continuous drinking of tea, indulged in daily and through the entire day cannot help supplying an opportunity for nervous affections; particularly when in addition it is poured down in such quantities after being drawn with too strong an infusion. No less is it responsible for weakening the firmness of the stomach, causing sluggishness of the bile, and, to express it in a word, affecting all parts with a deplorable languor. By a weak infusion they so disregard and corrupt the qualities of coffee—the moderate use of which seems to be quite fitting here if anywhere—that they enjoy neither its pleasant flavor nor its benefits. On the contrary, from its drinking they experience all the injurious effects arising from watery substances. From drinking beer and brandy they become overfilled with phlegm. Besides, those unripened liquors which

have not been subjected to a sufficiently protracted period of fermentation are fit to produce a freshly renewed fermentation in the stomach, which prevents digestion. For what has been termed gas by Helmont[81] is in some manner generated, until the air in the stomach, endowed with an elastic force, obeys the laws of expansion, the more easily in proportion as the weakness of the relaxed stomach resists it less.

Many harmful and few beneficial effects are to be attributed to the various spirituous liquors artificially prepared.[82] They produce a passing firmness of the fibers which disposes them to lose their inherent vigor.[83] They stimulate rather than strengthen. Finally such stimulation, since it has been sought too often, ceases to operate and necessarily destroys the natural firmness. Chocolate, which is a substance oily, rich, and quite thick in its native quality, is scarcely capable of being assimilated unless it be permeated by certain spices, through which it is loosened up, lightened, and made more fit for digestion. That healthful variety which Europeans, by an incorrect but commonly employed term, call chocolate is suited only to the stronger. It should be a criminal act to give to the sickly and weak any other kind than that which has been rectified and improved by the addition of vanilla.

Let us inquire briefly whether Americans are any happier in their choice of foods than in their choice of drinks. They prefer the cabbages to other vegetables; pork, and that too the greasy kind, to other meats.[84] All are half cooked. Of fish, they prefer the richer varieties to the others. They are besides so strictly bound by the laws of habit that, just as they mix butter, gravy, or sugar lavishly with each and every kind of food, so in like but opposite proportion they use very little bread, and that besides not carefully kneaded, or leavened, or cooked. Consumption of these foods produces within the stomach, which is warm and filled with water, the fermentation which was lacking beforehand. Then the air shut up within, after it has rumbled around its prison, becomes at last its own master and bursts forth, giving proofs of its freedom as unpleasant to the unaccustomed by-standers as they are annoying to the sufferers even though accustomed.

81 Jean Baptiste van Helmont (1577-1644) of Brussels, founder of the iatrochemical school. He introduced the term "gas," "which he alleged was a ferment or number of ferments which presided over nutrition, movement, digestion, and indeed over all vital functions." (Guthrie, *op. cit.* (note 10), p. 199.

82 Explained by Dr. Coste in a note as being those derived from grains and various fruits; such as apple, peach, and cherry.

83 The technical terms used are "tonus" and "atonia."

84 In a note Dr. Coste remarks that the excessive eating of ham contributes to the skin diseases that are so frequent.

What is the value in that huge supply of sausages, liver puddings, hams, butter, milk, sweets, pickled fish, chopped meat, fish, cakes, sweetened and watery drinks of all kinds served daily in the morning with such laborious preparation on the part of idling servants? To say nothing of calling this breakfast, it would not any more properly be called lunch if it were to receive a name from the great number of dishes set before one. For Americans err not only in the matter of a poor choice of foods and drinks. They err as well in the too lavish or too restricted planning of quantity; in the planning of time. Besides, to disregard those persons who grant their stomachs so rarely a truce to drinking and eating (for what interceding can there be between medicine and philosophy on the one hand and gluttons on the other?), do not even those eat too heartily in the morning who regard themselves rather as men of self-restraint, and have the reputation of being so? Surely warm and watery drinks, when mixed with butter and milky substances, do not win laxness for a stomach that is going to receive in the afternoon hours a diet of pork, fats, and cabbage stalks with no prospect of digesting them.

There is no dinner or almost none among Americans. Hence the need of so elaborate and important a procedure in eating on the following morning; demanded not by an appetite arising from bodily strength, but by weakness springing from the lack of nourishment. Meanwhile, when evening affairs demand their attention, they have recourse again to their favorite drinks, and are forced to do so. For they scarcely drink at all while they lunch. Therefore solid foods are not imbued with liquids as is needed, but enter into a stomach relaxed by the morning's drinking. At the time when digestion should be stimulated, it is prevented by the over-abundance of water that has been poured in. The half-cooked foods thus diluted, not to speak of failing to nourish and to assist in the requisite restoration of strength, become a burden. As the strength of the intestines is not equal to sustaining this weight, that which ought to be separated out is permitted to slip down together with that part which should be excreted.

The harm from this kind of diet is manifold. The residue of water as it leaves is carried by its own weight toward the bladder and away from any secretion by the kidneys. There is scarcely left any from which a fresh supply of chyle may be furnished to the blood; and what there is, is not sufficiently productive to provide for nourishment. On the contrary it is fit to produce a sickly, cold,

and sluggish thinness in the humors. Thus, to sum up in general, perspiration is hindered; evacuation is incomplete; there are a lack of nourishment, spasms of nerves arising from weakness, prostration of the vital powers, and a consumptive condition.

Does their apportioning of rest and activity favor or resist the evils that have been mentioned? I could wish that it did resist; but rather it favors them. The amount of time devoted to activity by Americans in no wise equals the period during which other peoples are awake. When they think that they are merely resting, you would say that they are closer to sleeping.[85] Only those maidens and matrons, who are called the Coryphees of the dance or Terpsichoreans from their engaging in choral dances, seem to follow or obey the rules of rhythmic action.

The practice of daily horseback riding by men is so completely the offspring of laziness that it seems to be a form of resting and not at all one of movement. If there is in it any activity, it is a harmful one. For they ride after luncheon as well as after breakfast. From this practice come those thick stomachs, that excessive fatness. Nor must it be forgotten how sluggish and incapable of the far more desirable habit of walking they become because of that vicious custom of horseback riding or of being transported in a carriage, a custom supported by a false feeling of shame. For Americans the word walking is meaningless. They know it only from hearsay; they laugh at our habit of walking. While a prejudiced opinion forbids them to make a trial of it, a mistaken sense of dignity approves their attitude.

Although the amount of time devoted to waking and sleeping should be in inverse proportion to that of activity and rest, we observe that they are in reciprocal relation. The slave and the master alike fall asleep; the one worn out by excessive work, the other by an excess of leisure. After Nature, in the spirit of a stepmother as it were, had impressed upon the African forehead the seal of blackness, a measureless greed for possessing, which traded in human liberty even with the very advocates of liberty, imposed upon those Africans a fate of hard compulsion and wicked slavery. It might truthfully be said that in this New World it has been

[85] [Note by Dr. Coste.] The indifference to exercise and labor which prevails in the New World belongs to the southern regions much more than to the North. To other causes of this difference I add the greater number of men of outstanding wealth and the greater number of slaves that are to be seen in the South, particularly in Virginia. If there is greater vigor and activity among the residents of Boston and Connecticut, perhaps the moral and political status of the region is no less a contributory cause than the physical nature of the climate and atmosphere. The political tendency in Virginia approaches an aristocracy; while that of Boston and Rhode Island is democratic.

solemnly enacted by decree of Pride and Slothfulness that no free-born man, even for the sake of health-giving exercise, should ever disgrace the dignity of his white face by even the slightest toil. Thus, Morpheus, your altars always spread with feather-pillows have been set up in the New World; and, as a god, you rejoice in many a poppy.

It is a fact not only quite deserving of observation, but equally easy to perceive that, just as in the case of the climate and the atmosphere of America, so also vegetation, animals, and men have had bestowed upon them a certain temperateness. It occurs to us to marvel at the native character so filled with gentleness that even the passions are much milder; to wonder too at how that "rage of a maddened lion," which Prometheus is said "to have instilled into our stomach,"[86] is still so unknown to the New World, even when the Republic is driving out a king. They have preserved "a mind tranquil in difficult affairs; in triumph, one restrained from excess of joy."[87] Is it an inborn endowment or is it moral perfection? It is uncertain. Yet I think that, even though it be an inborn endowment, it is one inclining rather toward virtue. And surely from such a natural character, everything that is good should be anticipated for the general well-being of the Republic. I bear witness that Americans are pure, upright, loyal, and temperate; held captive by a love of liberty, of children, and of a fatherland which smiles upon them as none other does. But how could I, a physician, a Frenchman, and one who desires to be known as a friend to these men, praise their too great inclination toward melancholy? When we are the companions and followers of joyousness, the circulation is increased, the process of distribution and secretion becomes easier, the muscular action is more free, as the sinews move in agreeable pulsations. But alas! how immobile are their mental states, suited to check the motive powers of the body as well as of the mind. How gloomy and stern are forehead and knitted eyebrows. With the Graces and jests and laughter banished from gatherings, feasts, and conversation, those charms of theirs, so deserving to vie with Venus in beauty, are transformed into sterner and wiser Minervas.

When marriages in early years are so usual, I fear that they may be marrying younger than is proper. In this way they expend upon a new function the organic molecules destined by nature in her wisdom for carrying on those functions which should have pre-

[86] Horace, *Odes*, I, 16, 15-16.

[87] Horace, *Odes*, II, 3, 1-4.

ceded. The result is a pliant offspring, one which readily grows. This quality of pliancy and this absence of tension is outwardly beneficial. Internally, however, the nervous strength is feeble; the firmness of the organs declines and being weakened causes a weak offspring to be conceived, to produce in its turn an even faultier progeny.

Turning now to mental disturbances, may I be permitted to surmise one or two reasons for the existing tendency to melancholy? The training of children is carried on privately in the home. Too quickly are the tasks and occupations, which should be rather the business of men, entrusted to the young. There is much reading of books; but only such as deal with serious, particularly political, topics. Above all, attention is given too sparingly to joint conversations and social gatherings which bring together men and women. As a result there eventuate among matrons a timidity and a certain inappropriate sternness, befitting rather a Vestal, so to speak. On their part the men exhibit a too great lack of concern for the more polished graces and refinements. All of these faults could be remedied by provision for public sports, such as were customary among the Greeks and Romans and have been instituted by both the older and more recent formulators of laws; whether contests in ball-playing, wrestling, running, or arms be preferred; whether formal or open-air dancing.

I could wish that through festal days grandfathers, great-grandfathers, and men of middle age might enjoy an inner brand of champagne or Burgundy, as they reclined on a secluded grassy plot;[88] as grandmothers told their old wives' tales, not without pleasure to themselves; while by the joyful young folk the wine pressed from the home-grown vine was drunk as they struck the earth with free foot.[89] For why in this New World should Bacchus be cheated of his ancient honors? Does not his tree grow everywhere of its own accord? Does not the vine, though uncultivated, wed itself to the lofty poplars,[90] and stretch forth its branches loaded with grapes, like arms, to the traveler? Liber[91] himself challenges, teaches, and admonishes you, O free men.

"Plant no tree before the holy vine,
For God has ordained all things hard for those who abstain;
Nor in any other way do biting cares flee away."[92]

88 Horace, *Odes*, II, 3, 6-8: "Seu te in remoto gramine per dies festos reclinatum bearis interiore nota Falerni."

89 Horace, *Odes*, I, 37, 1-2.

90 Horace, *Epode* II, 9-10.

91 An Italic deity of fructification identified with Bacchus. It is a play on words between Liber and Liberi (free men).

92 Horace, *Odes*, I, 18, 1-4.

Nor do honest pleasures, games, joy, and the tokens of joy misbeseem even the dignity of senatorial seriousness. Though Socrates, that famous child and father of philosophy, was often found playing at nuts with boys in the streets and at the cross-roads, did the Athenians ever withdraw the noteworthy esteem which they were wont to bestow upon that noble man? Is not even the indomitable virtue of old Cato said to have been mellowed often with wine?[93] Why need I mention the Scipios, Laelius, the almost countless names of great men, to exemplify and glorify the worth of joyousness; when even Hippocrates himself in many a place has spoken of the need for mental relaxation, has recited the praises of wine and love and music. He has admonished us concerning their use as well as given us rules concerning gymnastic exercises, so useful and delightful a practice that because of the invention of it, as he himself reports, they say that divine honors were accorded to Aesculapius.

It is very difficult to state upon historical evidence what was the nature of the medicine practised in the period of earliest colonization; easier to surmise through conjecture. We are led to believe that very few of the colonists suffered from physical weaknesses, and that the majority enjoyed a robust state of health.[94] Were not "oak and triple brass around the breasts of those who first," leaving their native land, "entrusted their frail bark to the wild ocean,"[95] prepared to go "wherever fortune might lead them."[96] It is scarcely likely that physicians of any notable reputation set sail with them.[97] For physicians have little concern with political matters. Nor "could religion persuade them to undergo so many hardships";[98] much less the desire for acquiring wealth, when nowhere else were there richer rewards for practising medicine than in England. The first foundations, of medicine, therefore, in these lands—in so far as may be determined from conjecture—were laid by the surgeons of ships and barks arriving from Europe.[99] There can be scarcely any manner of doubt that they brought with them certain speculative, systematic, or proven principles which were, either wrongly or correctly, accepted, understood, interpreted, altered, added to, or subverted. Some of these principles pertained to the identification and history of diseases. Others were unassimi-

93 Horace, *Odes*, III, 21, 11-12.

94 Very questionable. See Blanton, *Medicine in Virginia in the seventeenth century, passim.*

95 Horace, *Odes*, I, 3, 9-12.

96 Horace, *Odes*, I, 7, 25-26.

97 Some physicians of ability did come to Virginia in the seventeenth century. For a discussion of these early colonial physicians, see Blanton, *ibid.*, pages 3-31.

98 Lucretius, *On the nature of things*, I, 101.

99 Blanton, *op. cit.* (note 1), pp. 206-209.

lated or rudimentary concepts derived from an inferior system of anatomy. There was brought over also a long and abundant train of Galenical and particularly chemical remedies which at that time were flourishing in England. So there came in along with the first colonists and the first practitioners of medicine, not physicians, prejudged beliefs which at that time had taken root in the various parts of the old world from which the emigrants were departing. "In short all men do not admire and love the same things";[100] with the result that no one of those varied opinions upon diseases and drugs which had embarked upon a ship departed from the brazen beaked trireme before land was seen.

Next from all these beliefs, with which there were gradually intermixed and interwoven very many superstitious beliefs of the native Indians, there arose many prejudiced ideas about atmosphere and localities, about harmful powers of every kind, about the causes, nature, and cure of diseases. A pharmacopoeia grew up, filled with many specific remedies, and all the more unscientific because of the many sources from which it was concocted.[101] Out of all these components, I say, assembled from every side, was built up that monstrous system of Medicine, to whose formless shape no foot or head will ever be given. It has prevailed in the New World to the hurt of the colonists; for it brings upon our citizens such evils as can be named by that man alone who has observed the situation with philosophic eye.

Why do those men assume indiscriminately the title of Doctor, whose lot it has never been to have even sipped from the surface of the streams of literature? Men to whom everything pertaining to the humane arts, to philosophy, to whatever is productive of the good and the wise is no less unknown than that knowledge which from its inherent nature is termed occult? Why do you greet as Doctors those who have never even saluted the threshold of a College?

He is a Doctor of Medicine who, after having heard, written, read, and seen whatever prepares him to recognize and to cure diseases and having undergone previous trial and testings is judged worthy to obtain the award of that degree within an assembly of doctors, composed not of those reputed to possess knowledge, but of those who hold the degree. Too patiently do you permit the reward and the honor held by men who have grown pale from study to be thus usurped; the rights of the household to be handed over to strangers!

100 Horace, *Epistles*, II, 2, 58.

101 Blanton, *op. cit.* (note 1), pp. 99-118.

If the question involved merely a title improperly assumed; of how great concern, indeed, but yet relatively a minor one, would be this misuse! But the sacred rights of humanity are endangered, thrust down, trampled upon; while the title of doctor, assumed in this way by men who are unlearned and incapable of either attaining the degree or being instructed, creates full confidence on the part of both the practitioners themselves and those who are sick. "They can because it seems that they can"[102] and are so reputed. If the expression may be pardoned, "a physician from a cobbler" is not a proverb but a true tale; and indeed not alone among you. He who has gone to sleep as a cobbler can wake up a physician, if he wishes to act the role of a physician. Since for him it was sufficient to have said: "I am a physician," he can now be pointed out with the finger and have it said: "He is a doctor." But this man has found out a specific remedy; that one knows a certain panacea. One boasts that he has discovered a method for curing dysentery; another, a cure for intermittent fevers, better than those of anyone else. Men otherwise upright, nay even distinguished for their notable endowments, but endowments related to matters foreign to medicine and as far removed from it as any can be, are not ashamed to apply upon their own initiative their special method, as they say, to malignant fever, while calling their own experience to witness.[103] Their own method! "Trappings for the people."[104] Acquaintance with a mere rudimentary introduction to the Art itself and with a bare outline of physical laws teaches us that it is no less possible that by applying their method they failed to kill as that they cured. Drugs are prescribed by the very same man by whom they are sold. And yet, although the business of receiving and dispensing prescriptions might be proper for him, that of prescribing and selling could hardly be the function of the same man. The diagnosis of diseases, the giving of advice and the suggesting of cures by matrons themselves, maidservants, and slaves are not regarded as unbecoming the proper modesty of their women. O noble Aesculapius!

> "Now passion and reverence,
> so evilly yoked together, are at war;
> I am uncertain which to follow; the latter befits,
> the former delights me the more."[105]

[102] Vergil, *Aeneid*, V, 231.

[103] Dr. Coste refers here to the *Virginia Gazette and Weekly Advertiser*, May, 1782. See Blanton, *op. cit.* (note 2), pp. 178-186, 213-219.

[104] Persius, *Satire* 3, 30.

[105] Ovid, *Heroides*, XIX, lines 173-174.

This is the situation, most honored hearers; one at which I shudder when speaking of it.[106] It is the vile abuse of these many fools that, knowing not how to confess their ignorance even to themselves, they initiate and perform their experiments through the deaths which are the sole outcome of their repeated experimenting. Does not Hippocrates refer to such men in his work on *Ancient Medicine,* when he says: "For most physicians seem to themselves to be very like unskilled pilots of ships. If they are steering the ship on a calm sea, no one will catch them in fault. But if a violent wind or storm overtakes them, then it is clearly manifest to all that their ignorance and blundering have caused the wreck."[107] For while they attend those who are only slightly ill, they appear to have cured them; when, in fact, in these cases even the most serious mistakes are in no wise dangerous. And, in truth, since the number of slight illnesses is much greater than that of serious ones, the errors committed by healers, or by the common throng of healers, lie hidden from those who have been cured. Furthermore it is characteristic of the special philosophy of that group to count as cured as many as have not been killed. But, when the tempest rages and the North Winds wildly blow: "Scarcely can they withstand the too imperious sea; their sails are no longer unrent; no gods are there upon whom they may again call when hard pressed by misfortunes. Then they show how they are owed as sport to the winds."[108]

The physicians whom England, productive as she is of trained men, has instructed, tested, and sent, can scarcely resist the great evils existing in America. Hardly can those men do so, to whom the schools of medicine which are growing up in the New World have given appropriate training and the degree. Here and there in this vast land appear a few men of learning. But the influence stemming from these notable men, even though it is for the best, can win the favor of only special groups! Thus they are forced to rely for support upon unproductive prayers in behalf of the public welfare.

May there be no affront in what I say! No one will ever more scrupulously give honor to the true and genuine sons of Aesculapius, my colleagues and predecessors, men most worthy to be revered. This I not only publicly profess but take pride in professing. I proclaim that the Medicine of the New World must be transformed. This can be accomplished only by accepting the

[106] Vergil, *Aeneid,* II, 204.
[107] Hippocrates, *Ancient medicine,* IX, 22-29 (Cf. Jones, vol. I, pp. 27-29).
[108] Horace, *Odes,* I, 14, 7-16.

thesis that it shall be our wish that the Medicine which is the Medicine of those Physicians who are such in very fact, few though they be, the Medicine in which resides their strength and which they exemplify, shall become the Medicine of all others. And O, that it be not brought about too late!

Well then it is the primary and chief fault of American Medicine that often and too often it operates without the Physician. Do not these last words of mine cause many of you, my honored hearers, to remember that famous *bon-mot* which Jean Jacques Rousseau in his *Emile* allowed himself to utter against Physicians and Medicine? "Physicians," says he, "in order to defend Medicine, exalt the high worth of the art and attribute to the fault of the Practitioner whatever ill has occurred. But if the art is best, the practitioner worst; let the former be present, the latter be absent: and let Medicine operate without the Physician."

Surely no one of you fails to recognize how great repute that clever saying acquired, and with what laughter it was taken up by those for whom it was easier to mock at Medicine than to reform it. Especially was this sophistry made famous by the very reputation of its author: that man like to himself alone; hostile to all the spheres of knowledge which yet he cultivated, friendly to the men whom he shunned; rendered too bold by skill in speaking and writing, no less than in acting; one who by the deceptive allurements of literary attainments and eloquence had reached the point where even paradoxes, when he wrote them, seemed to be axioms.

O noblest citizen of Geneva! It can in no wise happen that none other than men of distinction listen to the dreams that are yours. But this saying of yours is a dream; one, besides, of such as are distorted by dialectic. Away with it in company with you! I shall show by provable facts what must happen to a Medicine which lacks the Physician. For what is any art without one who practises it, without a teacher? What is the body without the heart? Why should I not cry out with all the strength of my voice: "Never I pray, citizens of America, may you have Medicine without the Physician! For then, even though it were yours, it would be either nothing or a thing to be completely condemned. Let that Medicine which lacks the Physician be banished; Oh! be banished utterly. Let that Art, so abominable, be cut off at its roots, and let the books of such a death-bringing science be given to the flames! May the Gods grant a better fate to our loyal fellow citizens."

I shall proceed by setting forth the faults in which that degraded system of healing abounds; a system so widespread in its

acceptance, one that has so imperiously sunk its roots deep within the mind, that they can be torn out only with the utmost difficulty. Nor do I fear that I may pass beyond the bounds of proof, when I maintain that it stored up within itself not even the faintest spark of that Philosophy of Medicine which should be wished for. It is entirely empiric or falsely learned. It has no concern with diet in either acute or chronic diseases. It scarcely ever ceases from action, being completely ignorant of the efficacy of expectant treatment. In its active treatment, you will never find it to be simple in its methods, as it uses a multiplicity of drugs to an extent found nowhere else. What is worse, but a necessary consequence, rarely will you find it successful in its results.

The value placed by ancient physicians upon that procedure in effecting a cure which relies upon a system of diet, employed quite often at the beginning, sometimes throughout the course of the disease, has already been mentioned. No one valued this more highly than did the divine Hippocrates when he hints: "Forced by necessity men discovered the Art of Medicine for the reason that the system of diet followed by those who were well, when applied to the sick, benefitted them not at all." "No one," says he, "in my opinion would have applied his mind to the investigation of Medicine, if the same system of diet were suited alike to the sick and the well."[109]

How greatly the procedure of today's Medicine in the regulation of diet differs from that of the ancients! If indeed American practice deserves to be charged with the greater fault in this matter, it must be confessed that it has borrowed its prejudice and its carelessness from the English who, in prescribing a regimen are at fault not only in the matter of quantity of foods, but also in the matter of amount of drink. They hold to this aphorism, "There must be some concession to regional habits." Yet never did this aphorism connote a concession to excess, or that there should be such complete yielding to habits that are bad. Nowhere indeed in Europe are there to be found physicians who conform to the rules of Hippocrates concerning diet more closely than in our own France. Deservedly does the famous faculty of Paris claim for itself the greater share of praise for this. And in truth that is the first step in Medicine. When it has been taken, the health-giving Art will the more easily mount ever higher, since it will apply remedies, properly so called, to those cases for which the regulation of

[109] Hippocrates, *Ancient medicine*, III (Jones, vol. I, p. 17).

diet alone does not suffice. From such wise abstinence, how great benefit will come!

The Ancients relied especially upon diet, and in this they are truly worthy of imitation. This is the first step in the expectant treatment suggested to Doctors by the lessened appetite for food. In the opening stage of diseases they refrained from any active treatment or disturbance, through fear that they might obstruct the natural forces, which generally work together for the healing of the sick. Only after receiving a clear hint from nature did they have recourse to emetics or purgatives, and then, too, usually in limited amounts, lest the remedy be worse than the disease. From their wisdom, however, the majority of the men who are practitioners of medicine rather than physicians, have so far departed that at the beginning of disease they scarcely ever refrain from active treatment. Trusting more to art than to nature, in accordance with their rules, they boldly prescribe blood-letting, emetics, cathartics, epispastics;[110] and proudly cry aloud that they prefer to bring on or hasten the crisis rather than to wait for it. They boast that, in conformity with their high office, they are by this procedure upholding and sustaining their function of curing speedily, safely, and pleasantly;[111] a function handed down to them and so often glorified. I could wish then to consider a crisis advanced too quickly to be no better than one brought on too late; and that too on the authority of Celsus himself who wisely adds: "That was what they wished for, but too great haste and too much pleasure are apt to be almost dangerous."[112] In both situations alike a resurgence of the disease is to be feared. For no reliance should be placed upon an uncompleted crisis. That crisis alone deserves to be called by this name which is completed and which does not deviate from the laws established by nature. From too early action a fictitious, a bewitched, a counterfeit recovery sometimes results. It would be more rightly called not the beginning of health, but rather that of some chronic sickness. Thus upon acute fever or pleurisy, if dispelled by hasty and unwise action, there ensues not rarely dropsy or consumption. For to what other cause would they ascribe so many constantly occurring chronic ailments?

Certainly a greater number of such ailments occur in sections and amid local conditions where the curing of acute illnesses has been difficult or where too hasty treatment has prevented the completion of crises. Proof of this might be observed in this part of the

110 Substances used for blisters and calculated to draw out humors.

111 Celsus, *De medicina*, III, 4, 1.

112 Celsus, *De medicina*, III, 4, 1.

world. Would that it were a matter of less seriousness! Hippocrates tells us that the effects left by sickness after the crisis is past have customarily caused relapses.[113] "In the case of diseases, however, when one succeeds another, death commonly follows; for if to the existing illness a second is added, the body enfeebled by the first perishes from weakness before the second which came later yields to treatment."[114]

Examine those who are convalescing after active treatment and those who have been restored to health without such treatment. In the latter case a short period of convalescence follows a completed crisis; full restoration to health, a shortened convalescence. In the former case, the unfinished crisis gives birth to recurrent crises, or threatens to do so. Such an uncertain state of health follows a long and difficult period of convalescing from illness that you would think that patients, far from having regained their health, have merely exchanged disease for disease. While the one patient happily professes that he owes a cock to Aesculapius,[115] the other must fear that he may become a "gain for harsh Libitina."[116]

That type of medicine would incur less censure from its plan of active treatment and its extensive application of this, if it would employ a few selected processes. But it knows only a multiplicity of these. From the complexity of many causes, remote as well as immediate, that it has fashioned, it has developed that complicated method which would wish to apply to each disease its own peculiar medicine, to each system its special cure.

Vainly and fruitlessly does Philosophy cry out through the mouth of Hippocrates himself: "Nature is one, life and health are one; a single harmony, a single concord, all things agreeing together."[117] On the contrary the superstitions and wordy teaching of these pretenders to knowledge tell of natural inclinations, temperaments, the unlimited variety of diseases, the countless stores of remedies which kind mother nature has supplied specifically for overcoming so many diseases. Chance has discovered them; art and experience have confirmed their worth, directed their use, improved them. Clinical medicine is non-aggressive; the dispensing of drugs is inherently warlike. To such an extent has this situation developed for the injury of the human race that, while a few sons of Philosophy have taken upon themselves the duty of removing

113 Hippocrates, *Aphorisms*, Second Section, XII.

114 Hippocrates, *Affections*, 19.

115 A thank offering in return for recovery. See Plato, *Phaedo*, 118.

116 Death. See Horace, *Sermones*, II, 6, 19.

117 Hippocrates, *Nutriment*, XXIII, XXXII. (Jones, vol. I, pp. 351, 355).

daily some one of the moral and physical ills of life; the greater number whose learning is but folly, expend their labor upon adding fears to fears, dangers to dangers, diseases to diseases, poisons to remedies; and end by joining disaster to the suffering of the unfortunate. Their dispensing of drugs, their stupidity, and their greed for possessing would demand ever larger and more extensive volumes of remedies; while true wisdom, philosophy, and concern for mankind would desire such as are freed from errors, with their content reduced to the thousandth part.[118]

The varied, I could better say the countless, symptoms by which diseases are attended, the record or rather the imaginary account of so many thousand causes that combine to produce any disease at all, will indeed evidence the very great difficulties that attend the art of healing and will seem to supply an argument for active treatment and for using the multifarious drugs of medicine. Yet this conclusion is false. For, even though in diverse ways diverse causes join together to produce the same effect, very rarely are there diverse implications that must be evaluated. If indeed such are present, there is one which, by taking precedence over the others, stands out above them all and has greater validity. Nor is the situation otherwise when the question of remedies is concerned. For though you may apply, or wish to apply, a countless number, you will be forced to have recourse to selected ones, and those, besides, few in number and of a certain established kind. After the application of these the sickness is cured. I wish that it were and that there were no need for the concluding remarks that I desire to present on this topic.

The effecting of every cure must have a more fundamental beginning. Let me sing of matters of somewhat greater import,[119] O my hearers! The natural strength of the body is in fact the true healer. It attends every sickness. Often it is the most effective agency in bringing about a cure. Always it is the most important aid. I am ready to deny the worth of other agencies; I acknowledge this one alone. That healing power, so great that, if any knows not enough to rise in respect to its name, he denies himself to be a child of Medicine; that greatest of aids is Nature.

That which Hippocrates has termed natural constitution; Stahl, soul; Van Helmont, life force; Boerhaave, mechanical force; Haller, irritability or inherent organic strength; Bordeu, activity

118 Dr. Coste's own *Pharmacopoeia.* See Introduction, p. 13, (note 12).

119 Vergil, *Aeneid,* VII, 44-45.

of the glands and of the interwoven cells; Barthez, vital principle[120] possesses some divine knowledge, is endowed with power to produce and to take away diseases, whether Art assents or rejects. Is it fluidity of the nerves; or the interweaving and sympathetic action of the solid bodily elements; or the elasticity of the fibers; or the forceful movement of the circulation; or some electrical, magnetic, fiery, or ethereal quality of the humors? Can it be that some force due to the right proportioning of the constituent elements of the body among themselves, unknown in its character but very well known by its actions, produces that something by which, if it is present, we live, but if it is taken away death results; by reason of which, if it is correctly adjusted, our health thrives, but if it is maladjusted, diseases come upon us; by whose aid and under whose leadership the troop of diseases is routed, through bringing about a restoration of what is lacking, or a coction of that which is unripe, or a removal of that which is superabundant or injurious. Not only in acute diseases is it possible to observe the action of Nature as the healer. The situation is no less apparent in chronic affections, for which without the help of Nature there is no cure. What of those remedies called the hepatics, the splenetics? It should not be thought that, if the liver is cured, even though it were cured by the hepatics, for this reason the body is restored to its strength. On the contrary, the laws which govern life prescribe that, when the body is cured because all its parts are in harmony, then too the liver is cured. What is greater folly than to give a name to a certain disease and, after the name is given, to assign a drug. "What in truth is more base than rashness? And what is so rash and so unworthy of the seriousness and steadfastness of a philosopher as either to believe the false or to defend, without any hesitation, what has not been perceived and learned through sufficient investigation?"[121]

I know of no disease, most honored hearers, for the treatment of which, after its nature has been decided, one generally assigned

120 George Ernest Stahl: Called to the University of Halle in 1694; reacted from the physio-chemical doctrine by recalling attention to the reaction of vital forces on the outcome of disease (animism). Hermann Boerhaave (1668-1738): Professor of Practical Medicine at the University of Leyden, where he established a system of clinical instruction. Albrecht von Haller (1708-1777): Founder of the experimental method in physiology, and of the doctrine of irritability as the distinguishing characteristic of living tissue. Théophile de Bordeu (1722-1776): Noted for researches and publications upon the glands and the processes of digestion, and for the doctrine of the sensibility of the organs. Joseph Barthez (1734-1806): Introduced the theory of a dominant force distinct from the body and the mind yet endowed with sensation and perception, which he called the "vital principle."

121 Cicero, *De natura deorum*, I, 1, 1.

remedy or method of cure is the proper one. For indeed, in order that such remedy or method of treatment may be labeled with the title of Specific, it must duly fit every case of that disease and of that disease alone.

Such a concept is a Chimera, a Chimera and a waking dream. If there were in fact any cure applicable specifically to a single disease, there would surely be such in the treatment of true pneumonia. I refer to venesection. How then could it be used as a remedy for the anemic, the infirm, old age, infancy, the consumptive, those suffering from a conflux of serum? Peruvian bark[122] is not the exclusive cure for intermittent fever alone, or camp fever, or hospital fever, is it? It is not a fact, is it, that there was no method of curing the intermittent fevers before the discovery of Kina?[123] Was it not even possible for Hippocrates who was quite ignorant of Peruvian bark? Is it not even a more potent remedy in septic than in intermittent fevers? Can it not be used without fear of injury either for the latter or for the former at all times and in every case? Why should I mention mercury, why sulphur, why the magnetic processes for treating sicknesses, why the almost unlimited hundreds of remedies, no one of which would ever be set aside as endowed with a virtue truly specific. For even though it might effect the cure of some special disease, we often see a sufferer from an analogous sickness restored to health by the aid of another remedy, even one entirely opposite in its nature; or by the aid of no remedy at all. "We believe things to be great because we ourselves are small, and many things acquire greatness," as Seneca has most excellently declared, "not from their own inherent nature, but from our littleness."[124]

I can solemnly affirm, men of America, as proved not by a single experience but by experiences many times repeated, quite familiar to all of our soldiers in this imperial army and to many of you yourselves; I can, I repeat, solemnly affirm, upon the pledged word befitting a man of honor and a physician, that we have cured sufferers from scurvy without the use of anti-scorbutics; quartan fevers, often severe and of a stubborn form, without Peruvian bark; dysenteries, without simaruba;[125] many cases of pneumonia

122 Used extensively after its discovery early in the seventeenth century and often confused with the more plentiful Cinchona. The bark of both species contains quinine and other alkaloids in varying amounts.

123 Cinchona bark. The term is used here by Dr. Coste as synonymous with Peruvian or Jesuits' bark. See note 122 above.

124 Seneca, *Quaestiones naturales,* Book III, Praefatio, Section 10.

125 The bark of the root of *simaruba amara,* a tree native to Brazil, Guiana, and some West Indian Islands; employed medicinally as a tonic or astringent.

without blood-letting; quite many cases of spurious and putrid fevers without the application of emetics and purgatives, with their injurious effects. We have more than once discharged as cured sufferers from jaundice without the use of soap, the dropsical without the use of hydragogues.[126] Urinary disturbances have yielded to treatment without recourse to squill or diuretics. The bowels have been moved without senna or rhubarb, and with disregard to the whole group of purgatives. Malignant disease of the nervous system has been overcome in more than one instance, and not alone among men of lower military rank, without the use of either vesicants or antispasmodics. Notably in New England we freed a girl of fine family, who was being tormented by an oppressive amount of antispasmodics, from the continuous spasms, with which she was then being shaken, by no other action than by stopping the use of the so-called antispasmodics. After crises have been achieved, by benefit of an expectant treatment, quite often without the giving of a single drug, the appetite for food has come back, the strength has returned, vigorous health has been restored and has persisted. On the other hand not a single life has been preserved without observance of the rules of correct and suitable diet, while many a one has disregarded these to his very own destruction.

Yet you must not imagine, honored hearers, that we have never prescribed a medicine. Many a time we have used active treatment. Still oftener, however, we have refrained from doing so. Then too, when we have given treatment, it has been done only for a clearly understood reason, and because an analogous relationship has been perceived as existing between symptoms and treatment. When proof of this has been lacking, it has seemed safer to have abstained from treatment.

Surely, evidence from what has thus happened should have greater weight than that derived from active treatment. For the sick man was cured without the giving of medicine. But, you object! He might have been cured as well with the help of medicine. I grant it. But it must be admitted, at least, that the medicine may have been useless. How greatly does the evidence coming from that system of medical practice which relies upon observation and expectant treatment excel that coming from the one which turns to active treatment. For the proof presented by those who rely upon active treatment, or the administering of medicaments, is reduced

[126] Medicines having the property of removing water or serum from the body.

to that kind of reasoning, which, if it is absurd anywhere, is surely so in physical matters; namely, "After this, therefore because of this." How much more correctly and confidently does he reason who can say: "Without this I have brought about the cure, therefore they can be cured without this." Thus he refutes the man who insists: "Because of this," for if "because of this" be true, why is "without this" not also true?

Can there be found a physician of the highest authority, of the highest learning, one who is either an advocate of active treatment or has practised it, who will ever be able to assert the success of active treatment? In no wise, O my hearers! When such a one declares: "Because of this," his judgment in the particular situation rests solely upon opinion. When I say: "Without this," I know absolutely. They speak concerning things that have been heard, things that are probable. We who are healers from our practice of healing rather than of acting have seen the Crisis; have, as it were, surveyed all nature with our eyes. So, by refraining from action, we act; thus we defend no prejudiced opinion, we are bound by none. In company with Hippocrates, we do not hesitate to affirm: "The best form of medicine is frequently the administering of no medicine."

If many a time we have noted the superiority of such expectant treatment, if by means of it we have effected many cures, if we are convinced of its benefit to mankind, should I not favor such treatment? Should I not revere it? Should I not think that it ought to be defended by every possible means, even though it be not granted me to so do by my eloquence?

It was your procedure in the recognition and the cure of diseases, my beloved colleagues,[127] which you put to the test with such happy omens and which you carried through so successfully in your practice; it was your procedure that expanded, confirmed, and enriched this judgment of mine concerning the preëminence of Hippocratic medicine, a judgment at which I had previously arrived; you, in company with me, have conducted this difficult campaign of rendering a decision, of waiting, of avoiding action; a task involving a dangerous gamble, one filled with anxiety and irritation. You have had to journey from place to place, stay

[127] Dr. Coste mentions specifically in a note Dr. M. Goddet, who himself in the spring of 1781 and the autumn of 1782 contracted disease from his service to the sick; Dr. Bernard Borgella, doctor of the Medical Faculty of Philadelphia and a member of the American Philosophical Society, still a young man but thoroughly trained in theoretical and practical philosophy; and Dr. D. Forestier, physician in ordinary to the King.

awake, labor up to the loss of your own health, in order that you might aid the sick. You have been forced to live at the will of necessity. Your love for humanity had made this task yours. Great should be the praise and the gratitude of mankind that men, dear to their families, not forgetful of their friends and their homes, in a place so far from their native land, are engaging so zealously, so steadfastly, so devotedly in the practice of that art and science which will benefit so many others.

. . . . . .

I perceive indeed, my hearers, that this speech of mine is being prolonged beyond what I could wish. But the topic itself proclaims its importance; and so, trusting to the kindly and friendly ears of those present, I hasten toward the goal.

A search for so-called first principles constitutes, it seems to me, the foundation of medical practice; particularly in Virginia. Assertions are brought forward concerning diseases, both endemic and special. From these assertions suppositions, inferences, treatments are derived. I should like to proceed by a quite different method: by never at all accepting these matters as proven, but rating them always as problematic; by never presenting a thesis as something to be proved true but rather as something to be refuted. "A vein must be cut when treating pneumonia." Behold an aphorism! In place of this, let the question be put: "Should a vein be cut in treating pneumonia?" "Intermittent fevers must be cured by using Peruvian bark." For this assertion, there should be substituted two problems: "Does Peruvian bark cure, or can a cure be effected without its use?" "Is it expedient for a cure to be brought about by this form of medication?"

Let not the words of authority, even those of many physicians who testify from observation, receive the pledge of acceptance. Rather let the greater number of these observations be tested by known laws and weighed in the scales of a scientifically sound physics, anatomy, natural history, and chemistry. You will discover how few there are among such observations which deserve confidence. I read the extended accounts of symptoms for the most part inconsistent and impossible. True pathology rejects such fanciful tales. What long-lasting weariness is in store for you, if you do not shrink from perusing a successive list of symptoms and of their interpretations, from following the sequence of curative methods and processes, from disentangling the dull hodge-podge of remedies. Besides, amid these remedies there is always one pro-

nounced to be the more certain, one that steals from all the others the palm of victory in curing; whether this particular one has been long since adorned with the title of specific, or must be so adorned by the writer. You will detect that it is the chief goal of the narrative to have resolved all uncertainty. But in the name of modesty! Although the writer has given us a hundred remedies, yet none the less does he know to which one the life of the sick and the curing of the disease are owed; even though there is among the others none for which, with even more potent, or at least equal justice, he cannot devise a flawless eulogy!

"Whatever it is you thus show me, that in my disbelief I hate."[128] Even though you extol your triumph in words a foot-and-a-half[129] long, it is easy for me to fashion by using the very same verses a comedy out of your tragedy. For with a change of name I can tell of a small dose of soda given and prescribed or even more often of water, itself the finest of medicines, just as you yourself recount the tale of ammonium fluoride or liver of sulfur.

They all extol with praises a simple system of medicine. Yet very few practise it. Put no trust in appearance, nor in what has been said at conferences or banquets; not even in pronouncements from chairs of authority when some formal occasion calls together hearers of all ranks. You have listened with awe as he speaks with authority. Trace his footsteps as he prescribes abroad among the people, or in the hospital. You will wonder at the difference between the orator and the physician; not otherwise than if, after he has delivered a sermon on expending money for the benefit of the poor, you should see the holy preacher expending not a single penny. How often have I heard a man who proposes to discuss what they term *materia medica* or pharmacy, in the introduction to his inaugural oration, proclaim with all the power of his voice his praises of simplicity. So also with the physician who intends to conduct discussions on clinical procedure, or to lecture on the diseases of women or of mariners, or to write on epidemic disease; if one may trust their introductory statements. But, O my noble listener, spectator, or reader—merely survey their manifold divisions, classifications, headings, and subdivisions before particulars are arrived at; examine the number of remedies and procedures! Follow them into the hospital! You will see fashioned out of the orator the vendor of many drugs whom Medea scarcely rivals when intent upon restoring Aeson to his pristine youth: "She poured

[128] Horace, *Ars poetica*, 188.

[129] Horace, *Ars poetica*, 97.

them all together and mixed the lowest with the topmost."[130]

I would that his many compoundings might be in their union and their mixture identical with the brew of the Thracian sorceress, alike in their potency; and that it might be said of those sick to whom they are administered what Naso[131] says of Aeson: "His emaciation is routed and flees away; paleness and wasting depart; his hollow veins are filled once more with the blood that had been lost; and his form exuberates in all its parts."[132] On the contrary, as in their prescribing they use their hieroglyphic symbols, the words of the poet are more suitably applied to them when he says: "It is shameful to make hard the trifling, and to toil over absurdities is folly."[133] If a more simple science of pathology were approved, there would follow a like simple treatment of disease. To the extent, however, that either too great or not sufficient attention is paid to the science of medical research, a too involved pathology will come forth. For in this no less harm ensues from a lack than from an excess of scientific knowledge. "You will keep most safely to the middle course."[134]

Therefore the medicine which is dominant in the New World, old in years rather than having just reached its maturity, a medicine harmful to the people and our fellow citizens, can hardly be transformed; rather it must be consigned to oblivion. New schools must be opened, established upon a new and specially devised plan. In these only so much of theory as suffices and as has been clearly proven must be taught, and taught to but a few. Instruction which pertains to practice, properly so called, can never be too extensive. "We are not persons by whom nothing is accepted as true; but such as maintain that to all true knowledge false ideas have been added; ideas which possess such semblance of truth that there may scarcely be detected in them a sure sign whereby they can be judged and agreed upon. From this fact has sprung the saying that the probable are many."[135] If superstition and disbelief alike have their errors, then we must turn to Hippocrates for example and precept.

The study of physiology should accompany step by step a study of the anatomy of the human body and of that anatomy termed

130 Ovid, *Metamorphoses*, VII, 278. (The point of Dr. Coste's comparison becomes even more striking when the ingredients out of which Medea's magic potion was compounded are remembered: Thessalian roots, seeds, and flowers; the wings and flesh of a screech-owl; the scales of a water-snake; snow collected under the full moon; the vital organs of a were-wolf; a stag's liver; and other potent objects.

131 The poet Ovid.

132 Ovid, *Metamorphoses*, VII, 290-292.

133 Martial, II, 86, 9-10.

134 Ovid, *Metamorphoses*, II, 137.

135 Cicero, *De natura deorum*, I, 5, 12.

comparative, which consists in the dissection of dumb animals. There is no need, however, to require the physician to master an anatomy devoted to searching out the finest details or to be childishly curious about these. He should understand all that pertains to the vital, living, natural functions. He should gain a knowledge of the independent and reciprocal force of the muscles; of the directions taken by the vessels which carry and return the body fluids, and of their branchings. He should be thoroughly taught where the nerves originate; their distribution, their recurrences, their interweaving, and their interrelations, especially within the internal organs. The professor of anatomy should see to it that he himself is well versed in demonstrating not only the arterial system of what are termed the lymphatic passages, but the veins as well which return the fluids. We are indebted for the discovery of this last to our enemies;[136] men who have deserved well of the medical profession, from whom the blare of trumpets and the threats of war will never take away the least part of our gratitude and esteem. Nor would this ever be permitted by Philosophy, which is itself universal. O Peace nourishing Peace, the purpose and desire of a war begun so auspiciously! Peace so to be desired for our soldiers and our people! Peace to be chosen above the arts and sciences!

I link the study of chemistry to that of natural history which includes *materia medica.* By help of these studies candidates will have the opportunity to observe the nature, composition, and properties of bodies. As a consequence the physician will gain by a shorter path a perception of rarely occurring phenomena, which do not pertain to the art of healing, and also of those which concern more closely his own profession. By no power, however, other than the accustomed eye of the philosopher will the close union existing in nature be clearly perceived; a union because of which the various domains of nature have an inherent relation one with the other and possess analogies which can scarcely be grasped by the senses, but yet by reason of which the individual members of one domain are akin to the adjoining ones of another.

Far be it from me that I should wish to exile the concepts of chemistry completely from the school of medicine; nay, even that I could think that the value of chemistry to medicine needs any more extended defense than that afforded by the chemists them-

136 From among the English investigators of the lymphatics Dr. Coste in a note selects for special mention Dr. Samuel F. Simmons (1750-1813) for the publication at London in 1780 of the work entitled *Lymphaticorum vasorum anatomia.*

selves. The great service that they anticipate from their science through its expansion, this I could more happily expect to come from amending and subtracting. For neither the gift of stibiated tartar or leafed earth of tartar,[137] nor that of the more powerful drugs with which it has presented the medical world, would confer as much honor upon this science as it has won for itself by making known the uselessness of the galenicals[138] and other drugs, together with the danger inherent in almost all chemical preparations. In the light shed by its kindly torch, I examine the vast train of drugs that our ancestors have been too content to term the treasury of remedies. The chemical art reveals that they are either none of them primaries or they are identicals in varied forms or variants among remedies belonging within the same pharmaceutical group.

O how poor, and rightly poor, is the *materia medica* of Galen if it be tested by the touchstone of chemistry! Perhaps even poorer would be a chemical *materia medica*, when chemistry itself proves not only its deficiency but also its danger.

By investigating animal economy and its laws the physician comes to know the nature of living fibre, of nerves, of vessels, to understand the irritability of the membranes. Not only does he admit, but he teaches that chemical processes act in one way in vessels of tin, glass, or marble, but in another way within the human body. This knowledge shows the impossibility of a lithotriptic.[139] For how, when the sensitive membranes of the bladder have acquired through injury the hardness of stone, could a specific act with such efficacy? The chemistry of medicine in fact warns us of how few remedies do act by a chemical process. Do not acids or alkalies, when used in a case of suffocation furnish indeed a notable example of this fact by producing a like effect and a no less successful outcome? Has such evidence failed to attain the goal of proving that the re-awakening of the life still within the body is accomplished by a process quite different from a chemical reaction? Does not the chemistry of the moderns by the use of its acids dispel the same sicknesses as were cured with the aid of its alkalies by the chemistry predominant during the century just ended, which attributed every disease to the acidity of the humors? Therefore, beyond question, the cure was brought about, with the aid of either the one or the other, solely by an alteration of the ner-

137 Tartarum Stibiatum; Terra Foliata Tartari (potassium acetate).

138 Medicines prepared according to the formulas of Galen. Standard preparations containing one or several organic ingredients as contrasted with pure chemical substances.

139 An agent that dissolves abnormal concretions within the animal body.

vous condition from which the disease sprang. Our medical chemistry should devote its attention to watching over the preparation and administering of drugs, to insure that neither remedies conflicting one with the other, nor such as are injurious to the human body, are given. In composing its plan for therapeutical procedure, the page should be complete when a few devices are recorded, as being more effectual through having been more carefully chosen.

The third professor whom I should wish to have in any medical faculty would be the clinician. Let it be his function to teach all that is comprised in both pathologies. Let him explain the more general categories of diseases by a quite simple method, with the intention of arriving thereafter at the special diseases in due order, and each in its turn. Let him present the more obvious causes of the sickness, then those that are remote and immediate. Let him describe the symptoms attending the development, the climax, and the recession of the disease; upon the recognition of which symptoms, diagnosis depends. From among these symptoms let him distinguish those that are best from those that are good, the good from the bad, the worst from the bad; not only for the sake of prognosis but in order to deduce indications suggestive of either active or expectant treatment. He should take note of everything pertaining to the favorable or unfavorable attempts at effecting a cure on the part of nature on the one hand and of art on the other. But since "Whatever enters through the ears stimulates the mind less quickly than what is presented to the faithful eyes and what the youth imparts to himself,"[140] let example follow hard upon precept, as far as can be done, or at all events let precept be linked to example. In order that this end, which is the one of capital importance, may be attained, after they have heard the lecturer speak concerning methods of recognizing and curing diseases, let these youths, desirous of mastering the art of healing, follow him into the hospital while he puts precepts into practice. Just as the most ancient and celebrated school of medicine was located in the sanctuary of Aesculapius, so could your school be set up nowhere better than in the hospital.

In the university hospital the most accurate observation and most systematic recording of diseases must be maintained; but the least complicated, and therefore the more Hippocratic, plan of cure must be followed. There will result from this a more auspicious application of theory, befitting the instructor, and greater success will result from his example. The volume of prescriptions

[140] Horace, *Ars poetica*, 180-182.

should be very brief; the formulae, quite simple.[141] On the other hand, after the symptoms have been correctly established, I do not think that it will be in any wise improper to apply in their turn a variety of analogous remedies in order to prevent inexperienced learners from thinking that there resides in any one of them a more specific value.

The professor should not devote himself so exclusively to more general teaching that he becomes less attentive to problems pertaining to the section of the world, to localities, or even to the seasons; in fact, he who is not at all concerned about the general public health, and who cares only for the health of individuals performs a very small part of his work and deserves the least share of esteem. For it is attention to the former of these which makes provision for the latter.

And so the professor, if month by month or in alternate months he inquires into the constitution of the atmosphere—a matter quite well determined by meteorological observation—into foods, drinks, and other matters not classed as natural phenomena, likewise into unusual seasonal conditions which may occur; if he undertakes to explain the connection between the severity of diseases and the previous condition of the atmosphere; if, by virtue of being a skilled estimator of an existing condition, he derives a forecast of an approaching epidemic and pronounces publicly probable conjectures concerning it; if each and every apprentice in the Art, each and every candidate for a degree to whom will be entrusted the duty of observing and attending one of the sick, writes down in hospital notebooks whatever has happened with regard to the patient, attentively and reliably so that the beneficial can be separated from the injurious and that matters of greater importance can be distinguished from those merely related or immaterial; if finally each one of all these students hands over to his fellow pupils and to his teacher the account of his observations, both those of general importance and those concerned with his own special situation, in order that they may be tested, amended, and corrected; if all this is done, that professor, as none ever before him, will be acclaimed for having deserved well not only of his country but of the universal commonwealth of medicine. He will train his pupils by a shorter route than ever could the more famous schools, even among Europeans.

141 Dr. Coste in an appended note terms the *Compendium pharmaceuticum*, which he published for use in the French military hospital, (See Introduction page 13) simple and brief. Yet he states that perhaps not a tenth part of the formulae contained in it were put to practical use.

Questions relating to therapeutic hygiene should be the concern of the clinical professor, while familiarity with conditions not natural to a healthy state is the province of the professor of physiology. If in truth the science of physiology includes within its scope some attention to practical application, much more benefit will be derived from it.

Three schools in all, dedicated to the service of the allied commonwealths of America, could carry out fully the duty of teaching medicine. The first of these, at Cambridge, would be the more appropriate for New England, as it is called; the second, at Philadelphia, for the middle States; the third at Williamsburg, for Virginia and the southern States.

After those men whom each commonwealth knows to be the more competent and more learned masters of the Art have been called together into a convention for this purpose, it should be within their power to draw up in this manner statutes upon the study and practice of medicine; with not only the assent, but upon the authority of the supreme senate, which is called the Congress, and which watches over the well-being, the prosperity, and the honor of the whole Republic. It should be their duty likewise to write books suited to the times and the place, or to choose, approve, and recommend certain ones already written and accredited; none, however, but such as have been stamped with the attested seal of medical philosophy. Among such books of practical medicine are to be found those of Aretaeus, Celsus, De Baillou, Von Haller, Lommius, Sydenham the great Hippocrates of England, Baglivi the glory of Rome, Boerhaave the immortal honor of his age; and others from this very generation, Van Swieten and Gaub, Huxham and Pringle, of whom the latter is so famous for his method of cure, the former for his description of diseases.[142] Let every discovery whatsoever, if useless though learned, be

142 Aretaeus of Cappadocia (*floruit* second half of second century A.D.): author of *On the causes and indications of acute and chronic diseases* and *On the treatment*, a close follower of Hippocrates. Guillaume de Baillou (1538-1616): celebrated French physician, called the French Sydenham, who followed Hippocrates in seeking in the constitution of the atmosphere the cause of epidemics and of disease peculiar to the various seasons and climates. Jodocus Buranos Lommius (Josse van Lomm): one of the most able physicians of the sixteenth century, living at Brussels from 1557, excelled in diagnosis; his last work, published in more than twelve editions, issued in French translation at Paris (1712) under the title *Tableau des maladies, où l'on découvre leurs signes et leurs événements.* Gerard van Swieten (1700-1772): founder of the Vienna School of Medicine, reorganizer of Austrian hospitals and establisher of sound clinical practices. Jerome-David Gaub (1705-1780): professor in the medical faculty at Leyden, noted for his work *Institutiones pathologiae medicinalis.* John Huxham (1694-1768): noted for his investigations on the nature of infections and for his work entitled *Treatise on fever.* Sir John Pringle (1707-1782): known best for his works on diseases of the army and for initiating arrangements in warfare which led eventually to the development of the "Red Cross" organization.

marked with black and banished; likewise every faulty observation that could be a hindrance to this art devoted to the restoration of health.

And this must be done, since the misuse of theories and of panaceas, even more of counterfeit cures, prevalent in the learned regions of Europe, will never be able to threaten as much of danger to the safety of the citizens of those regions as the tenth part of them could in the New World. In the Old World an earlier belief dies away as a new one arises, to give place in its turn to a still later one. Thus, as others follow in their turn, they check a too prolonged acceptance of any single one. And so countless theories lacking the support of authoritative proof, in company with a very few possessing such authority, hold sway in any age you may choose. Not thus would it happen in this land. Errors would rejoice in sailing on with swelling sails while the wise critic would perhaps lend himself as sport of the winds.[143] The physician needs not a multiplicity of words or fluency in speaking; but a knowledge of diseases, a knowledge of remedies, for by these, not by words, are sicknesses cured.

It must, therefore, be the province of that most select assembly of physicians, those true sons and descendants of Apollo, to promulgate sound statutes for the Art by which prejudices and corrupt practices may be abolished and they may become Masters of the Art in their own right. Let it be within their power to survey afresh whatever is petty, worthless, unreasoned, granted or conceded to preconceived opinion; to correct, reject, condemn, annul; if ideas and practices that are good in themselves flow in, to restrain them within their proper bounds, that they may not overflow. Men who are free should teach a free Art, acquire further knowledge of it, govern it; they should not practise one debauched by ignorant credulity.

Perhaps someone objects: "The physicians whom you thus love to call antiquated did not kill our parents, did they?" Alas, my worthy fellow-citizens! Visit the monuments! The tombstones themselves will speak. From the rocky shores of the men of Boston to the tobacco fields of Virginia they bear their testimony to the shortness of life. The Fates give to the earth merely a glimpse of you.[144] In healthy regions where, as has been proven, the air, the food, the drink, are from their natural qualities good, whence comes that shortness of life which scarcely survives its eighth lus-

[143] Horace, *Odes*, I, 14, 15-16.

[144] Vergil, *Aeneid*, VI, 869.

trum?[145] In some way, therefore, health must be protected from a regimen of the worst kind and from a degraded medical procedure; in some way it must be restored.

Such a rectification of medicine will not lead to circumscribing the boundaries of liberty, will it? In no wise surely does it escape you that there can be no liberty, no not any, except it be controlled by reason. Otherwise it would be license and worthy to be condemned. Of what avail is civil liberty, if men become slaves afresh to prejudices? A slave of preconceived opinion is more base, more degraded than the slave of tyranny. Powerless and unwilling, I am held fast in its bonds. Unless I shake off my servitude to it, I do not wish to be free. I am free, free! Say it, act it! Let them say it, and let them be so! To permit anyone at all, who happens along in your path, to traffic indiscriminately in the lives of fellow citizens was the madness of a dying state. How would it be possible for commonwealths at the time of their birth, having Philosophy as mother, Mars himself as their father, to place themselves in bondage to the same fault?

The remembrance of other addresses that have been delivered, together with this so solemn occasion upon which I speak, should surely have called for an orator. But diseases have need of the observer; they do not demand the orator, nor do they fashion one. Besides, the physician, not untaught by his constant labor with the ill and with their sicknesses to create hard tasks for himself from the misfortunes of others, is reputed to have spoken well enough if what he has said proves to be of some sufficient use.

"What I have seen, what I have tested, what I have found to be true, that I have spoken upon the good faith of a physician. Let those of you who from their observations have learned to know these matters more correctly, frankly impart their knowledge! I shall as frankly admit it, as frankly accept it. For even though I stem from the ancients, no less do I respect those of the new school when they follow after the truth."[146] Plato is my friend, Aristotle is my friend; a closer friend than these is Truth. It is Truth that has impelled me to believe whatever, at the behest of the rights of sacred humanity and of the affection which I bestow upon the New World, I have urged upon you to discard or accept.

Let those to whom will be entrusted the noble task of establishing medical education make trial, if they are willing, of what I have said and of the advice I have given. As their accomplice, I

145 Forty years.

146 Dr. Coste attributes his quotation to Klein, *Clinical interpretations,* Preface.

hope that there will be none other than a successful outcome. O, when will that day dawn for me? What will ever be of more concern to me than the welfare, liberty, safety, and happiness of this land? After I have been restored to my beloved household gods, what shall I ever more earnestly wish for than that the Americans be wholly free, happy, safe, healthy, and long-lived? Especially may that Capitol stand firm, stand once again in all its brightness.[147] After the foes of liberty and the monstrous creations of prejudice have been overcome, may Virginia bring forth for herself, in more abundant measure, the fruits of justice.

Behold my final wish, planted deep within my heart! If its prophetic power does not deceive me, when a comparison will be made between the medicine which has been practised up to this time and that which is to be practised hereafter, this last will arouse for itself such acclaim from the minds of men of all ages and ranks that sooner will dominion over the seas and over America have fallen to the lot of the English; sooner will forgetfulness of Louis XVI, of our commanders and our soldiers have crept over this land; sooner will the name of Washington, that glorious hero, that Decius, or that Fabricius of yours, that Caesar, or all of these in one,

> "While he alone sustains so many and so great tasks,
> Defends his country's need with arms, adorns her with his character"[148]

have passed away from the memory of both Worlds, his glory have departed; than ever shall be eclipsed the splendor of the New World's medicine, thus cleansed, refreshed, and established for the good of the human race.

147 A wish now fulfilled in the present restoration of Colonial Williamsburg.

148 Lines adapated by Dr. Coste from the tribute addressed by the poet Horace to the Emperor Augustus (*Epistles*, II, 1, 1-2) and applied here to Washington.

Antique British Silver of Medical Interest

T. G. H. DRAKE*

OF all antique articles, British silver can be dated most accurately. The year of manufacture can be determined through the hallmarks, the small marks stamped on it at the halls, the guild headquarters of the goldsmiths companies, the associations controlling the assay and marking of articles manufactured from gold and silver. Goldsmiths companies, situated in certain of the principal British cities, are empowered and required to enforce the hallmarking regulations. The silver article, after being stamped by the maker with his mark (originally an emblem, since about 1700 his initials), is submitted to the association where scrapings are assayed for silver content; if found to be up to standard, the object is stamped with the appropriate hallmarks. Articles with a lower percentage of silver than the 92.5 per cent required of "sterling" quality or the 95.5 per cent of "Britannia" standard are defaced and returned to the maker. The submission for hallmarking of jewelry and certain silver articles of small weight is optional. In addition, the companies are empowered by various acts of parliament to institute criminal proceedings for the forging or imitating of any of the hallmarks which may be stamped legally only by them. As late as 1933, at the Central Criminal Courts, London, an antique dealer was sentenced to six months' imprisonment for having in his possession, without lawful excuse, silverware bearing the impression of a forged die. Thus, rightly, "the purchasing public all over the world look to the British hallmark as their protection against the spurious." Formerly, a considerable number of English, Scottish, and Irish goldsmiths associations stamped distinctive marks on silver. In recent times the number of assay offices has decreased. In England, the London mark is a leopard's head, Birmingham an anchor, Sheffield a crown. In Scotland, the Glasgow mark has always been a tree, a bird, a fish, and bell combined in one punch. The Edinburgh mark is a three-towered castle with, since 1747, a thistle added in a separate punch. On Irish silver the harp has been used since 1637 to indicate silver marked at Dublin; Cork since 1710 has used the mark "Sterling," in full or abbreviated in various scripts.

* Toronto, Canada.

A large proportion of antique silver articles of medical interest were assayed in London, hence it is with London hallmarks that we shall particularly concern ourselves. In the first Charter of the Goldsmiths Company, London, granted in 1327, its town mark of a leopard's head is referred to as "ordained of an ancient time." The leopard's head varies somewhat, with or without whiskers, etc., during various eras, but before 1822 it wore a crown and has been uncrowned since. The "lion passant," walking lion, is indicative of sterling quality silver, 92.5 per cent silver, the remainder copper. From 1697 to 1719, the crowned leopard's head and lion passant were replaced by the "lion's head erased" and the figure of Britannia. These new marks indicate a silver content of 95.5 per cent, a standard made mandatory during this period to conserve circulating silver coin of the realm, much of which was being melted down for the manufacture of plate. Britannia standard silver with its appropriate Britannia and lion's head erased marks may still be manufactured legally, but due to the lower copper content it is softer; hence, extremely little of this alloy has been used since 1719. Britannia standard silver should not be confused with Britannia metal, which is a pewter-like alloy in use since the early 1800's. Articles manufactured from it, frequently silver plated, do not bear true hallmarks. The reigning Sovereign's head first appeared in 1784 to indicate payment of government tax, and was abolished in 1890 with the repeal of this duty. Thus, the presence of an uncrowned leopard's head identifies a piece as having been marked after 1822, the presence of a Sovereign's head places the date as between 1784 and 1890.

One of the hallmarks on silver that has been assayed in London is the single date letter. It is through this letter that the actual year of marking can be determined. One type of script is used during each twenty-year period, the letters of the alphabet with the exception of J, V, W, X, Y, and Z, which are omitted, following in proper yearly sequence. The shape of the enclosing shield also remains constant for each twenty-year period. In most books on British silver, illustrations will be found of the various town hallmarks arranged chronologically. *English Goldsmiths and Their Marks* by Sir Charles James Jackson, though an expensive volume, is a "must" for the serious collector of British silver.

Pap Boats

Of antique silver articles of paediatric interest the most easily obtainable are pap feeders, the boat-shaped utensils, capacity two

to three fluid ounces, designed for giving infants the bread, sugar, and water feedings of porridge-like consistency known as pap or panada.[1] The pap boat occupied in the past the position of christening or other gift to the infant from the godparents, relatives, or friends now held by the silver mug or porringer. The extent of one's collection of pap feeders of the ordinary boat shape depends only upon one's pocketbook and enthusiasm, practically every antique silver dealer having one or more examples in stock. Specimens are available even in Toronto, though frequently the price is double that at which they can be obtained overseas. This high local price is of course gratifying to the collector with twenty specimens obtained in England in his collection. He may even reach the stage when he considers their further acquisition an investment rather than an expenditure. Small-size boats should be carefully scrutinized since hallmarked bowls removed from old punch ladles have been found masquerading as pap boats.

The earliest pap boat in our collection is the Britannia standard specimen, London, 1719. Early examples are practically all plain and pleasing in appearance. In the 1840's and 1850's, in common with other plate, extremely ornate designs were preferred; in fact, some early plain boats were modernised at that time by over-ornamentation through embossing and engraving. Handled and spouted examples are extremely uncommon. Our rarest specimen is a tiny boat two inches long, a child's toy *circa* 1730.

Bleeding Bowls or Porringers

"In the days of Hippocrates bleeding was not so frequent as at present, and yet they drew more blood than we do now; for the ancients rekond it by pounds and we by porrengers, those of ours two or three porrengers. These porrengers have each a small ear to hold by on occasion, and they are to hold three ounces each."[2]

In England, in the past, most collectors and dealers have classified one-handled porringers of whatever capacity and whether in pewter or silver as bleeding bowls.[3] The principal opponent of this view was Commander How of the famous London firm of antique silver dealers, How of Edinburgh, whose contention was, at least in the case of those of larger capacity, that these were uten-

1 Drake, T. G. H. Pap and panada. *Ann. med. Hist.*, 1931, *n.s. 3*, 289.

2 Dionis, Pierre. *A course of chirurgical operations demonstrated in the Royal Garden at Paris.* Translated from the Paris edition. London, 1710.

3 Drake, T. G. H. Antique pewter articles of medical interest. *Bull. Hist. Med.*, 1941, *10*, 272.

sils for serving cooked cereal. After a spirited correspondence through the columns of the English antique magazine, *The Connoisseur,* the editors' summing up was that the small capacity specimens were certainly bleeding bowls. In Figure 1 is shown a Commonwealth specimen, to the author's mind a bleeding bowl, London, date 1652. Its capacity, filled to the brim, is nine fluid ounces. This specimen, in fine condition with clear hallmarks, is the most valuable article in our collection of medical silver.

Lancet Cases

"The Lancet is of all instruments the most necessary to a chirurgeon, because without it he cannot perform the most convenient operation in Chirurgery, I would say Phlebotomy; and using it every hour he is obliged to be provided with several. Some will have them very narrow pointed, others a little broad; the former assert that the first sort may be better guided in the vein. Those I make use of . . . they are called Lancets with a Barley-Corn point. Its handle is generally of tortoise shell, and ought to be very thin and separated into two Parts, for the more commodius cleaning of it." Having arrived on the scene, "the chirurgeon takes out of his case the Lancet, which he opens and puts in his mouth. The bandage having been tightened about the upper arm. . . . He is next to shut the Patient's hand, with his Thumb within his Fingers, that the muscles by that action swelling may the better raise the Veins. As for my part, as soon as I have chose my Lancet, I put my Lancet-case into the Patient's hand for him to hold, instead of grasping his Thumb, and it produces the same effect. This case must also be given him to turn it in his Hand after the Orifice is made; so that 'tis gaining of Time, the Patient turning it as soon as the Blood comes, without being obliged to ask for it."[2] Dionis recognized that "tis not enough for the chirurgeon to have a good eye and steady Hand, but must be furnished with good instruments in order to bleed without Pain" and to achieve the result, considered by the patient to be the mark of good surgery, that the "blood spring out like the streams of a Fountain, in the form of an arch" rather than run down the side of the arm.

It might be surmised that the surgeon's case of bleeding lancets, being used in "incontestably the greatest Remedy in the Medical art," would be one of the most common antiques of medical interest. However, though empty cases are readily obtainable, with accompanying lancets they are quite rare. In Figure 2 are

shown five silver lancet cases and one of tortoise shell banded with silver, each of which contains its full complement of two to six lances. In one example the lancet handles are of mother-of-pearl rather than tortoise shell.

RATTLES AND TEETHING STICKS

"When the teeth are ready to cut, a silver coral furnish'd with small bells is ordinarily made use of, to divert the child from the Pain it then feels, and to cool its Gums, which are then inflamed, and to facilitate the cutting of the Teeth."[4] "Sometimes in place of Coral, they put a Wolfe's tooth in. One must not however believe that these things have any peculiar Property, as many women imagine; but if they are helpful in this case, it is because of their Solidity, Evenness and Smoothness; for the Child rubbing the Gums with it, to ease the itching which it feels there, doth by degrees diminish the thickness of them, and so they are at length sensibly cut by the Teeth which are under."[5]

By 1799 some had apparently raised objections to assisting the eruption of the teeth by rubbing them with a hard polished body such as coral, since Michael Underwood wrote: "These means nevertheless and especially the coral, have been objected to by some modern refiners; but these objections are certainly groundless as in giving this direction we are only following nature. For the young of all animals who suck, as soon as the teeth begin to shoot are always strongly inclined to gnaw such things as afford a little resistance."

The coral may have been considered to have also amuletic virtue. Pliny wrote: "The branches of coral hanged about the necks of infants and young children are thought to be a sufficient preservative against all witchcraft and sorcerie." As recorded by Pettigrew,[6] Paracelsus recommended coral to be worn round the necks of children as a remedy against fits, sorcery, charms, and poisons. The observation was also made by Pettigrew that "the bells affixed to the coral toy with which children used formerly to be generally arrayed have been conjectured to have been attached for the same purpose, as the ringing or rattling of them have been esteemed inimical to witches, sorcerers, etc."

4 Dionis, Pierre. *A general treatise of midwifery faithfully translated from the French.* London, 1720, p. 320.

5 Mauriceau, Francis. *The diseases of women with child.* Hugh Chamberlen, Trans., 7th edition. London, 1736, p. 343.

6 Pettigrew, T. J. *On superstitions connected with the history and practice of medicine and surgery.* London, 1844.

Fig. 1. Bleeding bowl, 1652.

Fig. 2. Lancet cases and lance, 1819-1863.

Fig. 2. Lancet cases and lance, 1819-1863.

Fig. 3. Rattles and teething sticks, 1786-1890.

Fig. 4. Pomanders, vinaigrettes, and smelling salt container.

Fig. 5. Toothbrush set and tongue scrapers, *circa* 1800.
Fig. 6. Spouted feeding pots, 1783.

Fig. 7. Medicine spoons, 1800, 1830, 1860.

Fig. 7. Medicine spoons, 1800, 1830, 1860.

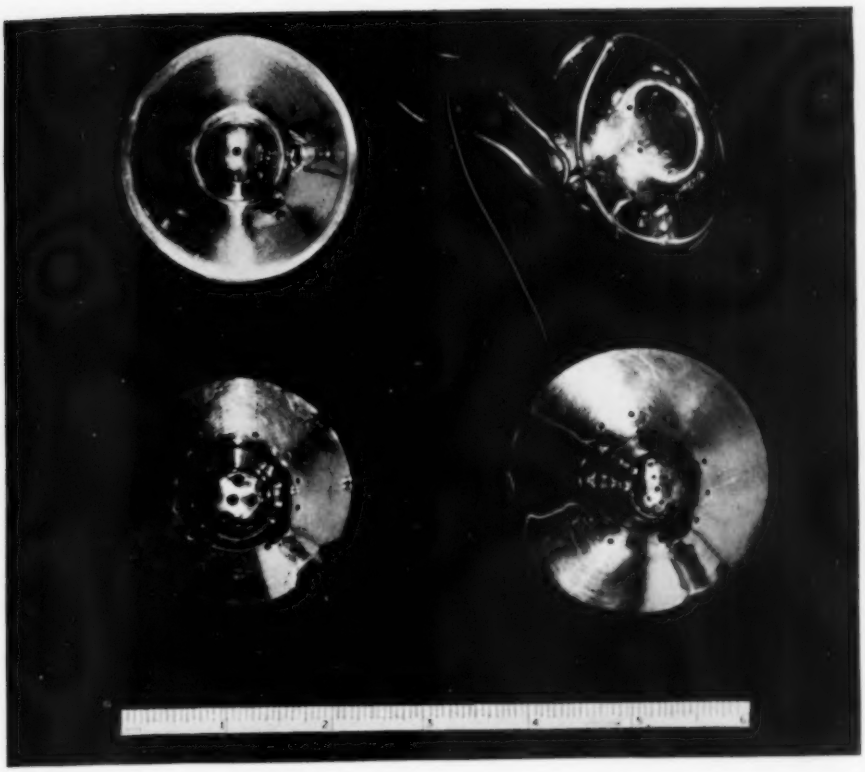

Fig. 8. Nipple shields, 1797-1803.

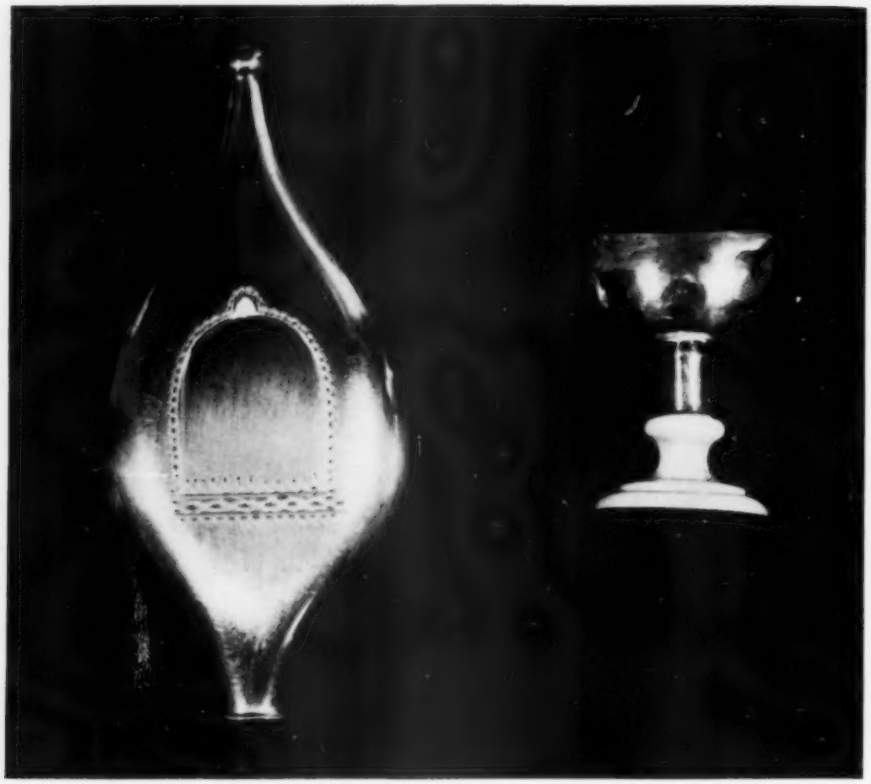

Fig. 9. Infants' feeding flash, *circa* 1800. Eye cup, *circa* 1800.

In the latter half of the nineteenth century coral became uncommon, being replaced by mother-of-pearl or bone sticks or rings of silver, pearl, or bone. In the past, coral and bells (Fig. 3) have been readily and cheaply obtainable. Specimen 2, silver gilt, London 1798, successively engraved HRR 1800, HERR 1874, RERR 1920 was purchased fifteen years ago in a London pawn shop for £1. However, antique rattles have become more uncommon in England during the last year, the reason given by British dealers for this scarcity being a sudden demand from the United States for these articles. The tiny gold specimen, London, *circa* 1854, perhaps a piece of jewelry, is of extreme rarity. Teething sticks as illustrated, equipped with whistle but lacking bells, are rarer than rattles.

Pomanders, Vinaigrettes, and Smelling Bottles

The name pomander, derived from the French "Pomme d'ambre," apple of ambergris, has been applied not only to the mixture of aromatic substances in the form of a solid ball used "for the prevention of ill airs or scents," but also to the silver or gold container enclosing the pleasant smelling and supposedly anti-infective material. A definition of "Pomambra" was given by Stephen Blancard in 1708 as, "a musk ball, consisting of divers sweet scented ingredients; such as ambergrease, musk, civet, benzoin, oil of cloves and cinnamon, made up into Balls with some glutinous or resinous matter." Andreas Laurentius, in 1599, describes a pomander for use as a hypnotic: "There may also an apple be made to smell into. Take of the seeds of Henbane, of the rinde of the rootes of Mandrags, of the seede of Hemlocke, of each one dram, of Opium a scruple, of the oyle of Mandrags a little. Mix all these with the juyce of Fumitorie and Houseleeke, and make an apple thereof; which if you smell into, it will cause you now and then to sleepe; put unto these to correct them a little amber and muske." Impoisoned "amulets" consisting of containers of arsenic were also worn on the person to prevent contagion in plague epidemics.

The use of these supposedly infection-preventing pomanders was so wide that the author was quite pleased to obtain the book, *Certain Rules, Directions or Advertisements for this time of pestilential Contagion with a caveat to those that weare about their neckes impoisoned amulets as a preservative from the Plague,* by Francis Herring, D. in Physicke and Fellow of the Colledge of

Physitians in London, London, 1636, which from its title proved that some at least doubted their efficiency. However, I feel that a pomander would be just as successful in plague prevention and certainly more pleasant to use than a prophylactic measure recommended by Herring: "But if any be in that extreamitie of povertie and misery, that they cannot procure these parable and easie cheape medicins, let them drinke twice in the day, a draught of their owne Urine, in the morning, and five in the after-noone."

The pomander case was carried in the pocket or hand, or suspended by a chain from the neck or waist. While in use from the fifteenth century, the silver pomanders now obtainable date from the sixteenth to the eighteenth century, are extremely rare, and much sought after.

Figure 4, No. 1, is a pomander designed for holding aromatic substances in separate compartments. As shown in the illustration, the unscrewing of the top allows the divisions previously held snugly against the central post to fall open. While this sixteenth century specimen is Continental in manufacture, in its base is inserted an English Queen Elizabeth sixpence dated 1575.

Double compartment urn-shaped pomanders are of a later date than the above multilocular type, example No. 2 being early eighteenth century. The single division globular specimen, 3, and the double loculi one, 4, are late eighteenth century.

From an early date sponges moistened with various anti-infective and deodorant vinegars had been in use as prophylactics. The preparation of one such vinegar is described by Hannah Glasse, in *The Art of Cookery* (9th edition, London, 1765).

> Receipt against the plague. Take of rue, sage, mint, rosemary, wormwood and lavender, a handful of each; infuse them together in a gallon of white wine vinegar, put the whole into a stone pot, closely covered up, upon warm ashes, for four days; after which draw off (or strain through fine flannel) the liquid, and put it into bottles well corked; and into every quart bottle put a quarter of an ounce of camphire. With this preparation wash your mouth, and rub your loins and your temples every day; sniff a little up your nostrils when you go into the air, and carry about you a bit of sponge dipped in the same, in order to smell to upon occasions, especially when you are near any place or person that is infected. They write, that four malefactors (who had robbed the infested houses and murdered the people during the course of the plague) owned, when they came to the gallows, that they had preserved themselves from the contagion by using the above medicine only; and that they went the whole time from house to house without any fear of the distemper.

An aromatic vinegar of very similar composition still persists under the name "Vinagre des quartre voleurs," (vinegar of the

four thieves), in *Squires Companion to the British Pharmacopoeia* (19th edition, 1916).

About 1800, the name vinaigrette came into popular use to describe "small ornamental bottles or boxes usually containing a sponge charged with some aromatic or pungent salts" (*Oxford English Dictionary*). These little trinkets (Fig. 4, Nos. 5-9) were carried loose in the ladies' pockets or in the reticule, or placed on the cabinet table. While varying in size and shape, they consisted of a bit of sponge in a compartment covered by a silver gilt-engraved grid over which closes a tight-fitting outer lid. Judging from the large number of silver vinaigrettes now available in London antique shops, these articles were as necessary to the lady of the late Georgian and early Victorian eras as the powder compact is to the women of today. Glass or enamel specimens are rather rare.

By about 1860 simple vinaigrettes were being largely displaced by smelling bottles, at first incorporating a vinaigrette with perforated grill but finally consisting only of a single or double glass container for aromatic vinegar and/or smelling salts, with silver or gilt mountings. The two-compartment bottle (Fig. 4, No. 10), in addition to a vinaigrette, contains a small magnetic compass and space for a photograph.

A "balsamic and anti-putrid vinegar" is described in Mrs. Rundle's *The New Family Receipt-Book*, London, 1811. "Acetic acid may be mixed with aromatics, as in Henry's thieves vinegar, in a quantity sufficient for a small smelling bottle, at no great expense. But it is the acetic acid which is useful, and not the aromatics which are added for the pleasure of the perfume. Acetous acid, or common vinegar, with or without aromatics, has little or no anti-putrid quality." Smelling salts also may have been compounded from Mrs. Rundle's receipt. "To make an excellent smelling-bottle. Take an equal quantity of sal-ammonia and slacked lime, pound them separate, then mix and put them in a bottle to smell to. Before you put in the above, drop two or three drops of the essence of burgomont into the bottle, then cork it close. A drop or two of ether, added to the same, will greatly improve it."

Tongue Scrapers

Included in the toothbrush set, London, 1799 (Fig. 5, upper left, A.B.C.) is the narrow flexible silver blade, C. After various surmises as to its place in oral hygiene, including an attempt to

use it as a spatula to remove the tooth powder from the dentrifice box, A, its intended purpose, for scraping the tongue, was discovered. Tongue scrapers of the Georgian era are not uncommon. Whether the tongue became more furred in those hard-drinking days than at present or whether tongue scraping was considered then an essential point in mouth toilet, is unknown. Probably many of the sturdier tong-shaped specimens, E and F, have degenerated into sugar lifters in modern times.

SPOUTED FEEDING POTS

All types of silver spouted feeding pots are uncommon. In Figure 6 are shown two extremely rare spouted feeders of paediatric interest. The specimen on the left, four inches tall, London, 1793, is of the type of feeding flask devised by Dr. Hugh Smith and described in his book, *Letters to Married Women* (4th edition, Dublin, 1777, page 140).

> Since this book made its first appearance, I have contrived a milk-pot for my own nursery upon the above principles; It appears to my family, and to many of my patients, preferable to those now in use, and may probably be still further improved. For the satisfaction of my readers I shall give a description of it. This pot is somewhat in form like an urn; it contains a little more than a quarter of a pint; its handle and neck or spout are not unlike those of a coffee pot, except that the neck of this arises from the very bottom of the pot, and is very small; in short it is upon the same principle as those gravy-pots which separate the gravy from the oily fat. The end of the spout is a little raised, and forms a roundish knob, somewhat in appearance like a small heart; this is perforated by three or four small holes: a piece of fine rag is tied loosely over it, which serves the child to play with instead of the nipple, and through which by the infant's sucking the milk is constantly strained. The child is equally satisfied as it would be with the breast; he is obliged to labour for every drop he receives in the same manner as when at the breast; and, greatly in recommendation of this contrivance, the nurses confess it is more convenient than a boat, and that it saves a great deal of trouble in the feeding of an infant; which is the greatest security to parents, that their servants will use it when they themselves are not present. The model of this milk-pot is left with Mr. Morrison, at the Three Kings, in Cheapside, for the benefit of the public. The milk-pots are now also made in the Queen's ware, in order that the poor may be accomodated; any person, therefore, at a very trifling expense, may be convinced of their utility by making the experiment.

The second specimen, Newcastle 1793, is also of a type which would be rendered more acceptable to the infant by equipping it with a nipple fashioned from cotton or loosely stitched chamois, perhaps stuffed with a bit of sponge, securely tied over the knob-shaped end of the sucking tube.

Medicine Spoons

In Figure 7 are shown two types of spoons for the administration of medicine. The handleless, half-covered bowl of A (left), Exeter C 1800, would appear to be quite efficient for this purpose. B and C (London 1830 and London 1860) are of a type quite frequently met with in pewter in bowl capacities of from one to eight teaspoons. Specimens of this type in silver are not uncommon but have been observed only in the one size, containing approximately one teaspoonful. These spoons were filled through the trap door which was then closed. The tip was placed in the patient's mouth, the flow being controlled by finger pressure over the tubular handle which opens into the bowl. If the contents were not taken rapidly enough, one could blow down the hollow handle. The thought which will flash across many minds is how often did the prospective recipient blow first.

Nipple Shields

In Figure 8 are shown four nipple shields, London 1797-1803, the use of which as breast protectors has been described previously.[7] However, it is believed that an explanation of the peculiar form of the upper right specimen, London, 1798, is worth repeating. To this nipple shield, some previous owner, unaware of its proper use, has soldered a silver loop and hairpin-shaped wire to convert it into a tea strainer.

Infant Feeding Flasks

No example has been met with in silver of the pear-shaped infant feeding flask of the eighteenth century, many pewter examples of which still exist.[2] It would appear to the author that if a specimen of this form came into the hands of an unscrupulous person, the temptation to convert it into a readily saleable sugar or pepper castor by multiple perforation of the top would be great.

It might be thought that the prototype in silver of the flattened infant feeding flask of the early nineteenth century,[8] more than one hundred examples of which in plain and transfer printed pottery are to be found in our collection, might be readily obtainable. However, the example shown in Figure 9, Scotch, *circa* 1800, is the only one which we can find recorded. This flask of three-

[7] Drake, T. G. H. Antiques of medical interest, nipple shields. *J. Hist. Med.*, 1946, *1*, 316.

[8] Drake, T. G. H. Infant feeding in England and in France from 1750 to 1800. *Amer. J. Dis. Child.*, 1930, *39*, 1049.

fluid-ounce capacity is filled through the tight-fitting trap door in the top.

EYE CUP

Another article, examples of which in pottery are quite common but which is represented in our collection of silver by only a single specimen, is the eye cup, *circa* 1800, with ivory base, also shown in Figure 9.

Other silver utensils of medical interest known to the author are pill containers, posset pots, inhalers, and basins of the barber surgeon type designed to fit under the chin and about the arm. Probably many inhalers have been converted into tankards by discarding the cover and soldering up the holes in the handle designed for the ingress of air. No great urge was felt to purchase the very rare silver chamber pot, London 1714, engraved with the crest of the Earl of Warrington, illustrated and advertised for sale in the *Antique Collector* May, 1949.

As time goes on, without doubt, other silver antiques of medical interest will be brought to the author's attention at grave risk to the family budget. Certainly no thinking person could be expected to purchase a new-fangled type of washing machine when the choice is between buying that article and investing in a Commonwealth bleeding bowl, especially since, according to the advertisements, rinsing is no longer necessary to wash clothes snowy white.

The Influence of Western Medicine on the Traditional Medicine of Viet Nam

DUONG BA BANH*

THE traditional medicine of Viet Nam, like that of Japan and Korea, stems from ancient Chinese medicine. During the Middle Ages, Tue Tinh, a Buddhist monk, wrote the first definitive work on traditional Vietnamese medicine, compiling the most important remedies of his time. He called his work *Wonderful Drugs of the South,* to differentiate these drugs from those of the Chinese, known as "Drugs of the North." In the eighteenth century Lan Ong, the Vietnamese Hippocrates, published the most important works of our ancient medicine and brought it to the highest level yet achieved.

Then European medicine began to appear toward the end of the nineteenth and the beginning of the twentieth century. What can be the consequences of the meeting of these medicines—a question which is only a part of the great problem of the meeting of two civilizations apparently so different?

It is difficult to realize exactly the influence of western medicine, as even now traditional Vietnamese medicine is still in evolution. Nevertheless, we shall try to state it, after first making a general survey of our traditional medicine and its theories, then recalling the chief facts concerning the introduction of European medicine into Viet Nam.

Characteristics of the Vietnamese Medicine

The basis of the Vietnamese medicine lies in the Eastern cosmographic philosophy of man's origin formulated in ancient China. It holds that man and other creatures alike are composed of the same elements as the Universe: two fundamental principles, the male and the female, which produce the five materials: metal, water, fire, earth, and wood. These materials are sufficient to form all the creatures of nature.

Man therefore represents a little world living in a big one, a microcosm in the midst of a macrocosm, the Universe. The same conception also existed at that time in Europe.

* Dr. Banh died while this paper was in press.

Many factors may influence man's destiny, bringing health or illness, life or death. There are external factors such as wind, cold, heat, dampness, dryness; internal causes such as joy, anger, sorrow, love, hate, and sensuality. Illness would be the result of an unbalancing of the elements composing man.

Ancient anatomy and physiology, the two fundamental sciences in medicine, were full of false ideas. And this is the indirect consequence both of the Buddhist law which orders that "one should spare the smallest particle of life" (this of course ruled out the dissection of animals) and of the Confucian concept enjoining that "the body of every man belongs entirely to his parents who have created it, and must not be destroyed or modified" (then there were neither autopsies as no family would permit it, nor surgery, as everybody was fearful of operations).

Diagnosis had special rules. Inspection of the patient was careful, because each internal organ had an external one linked to it; the modification of the external indicated illness of the internal. The most difficult but essential means of diagnosis was taking of the pulse, or rather pulses. Indeed, there were twelve principal pulses, six to each wrist; they were different according to the age, the sex, the temperament, and above all were linked to vital organs. Changes in a pulse indicated the disease of the corresponding organ. In this manner ancient physicians have described as much as seventy-four varieties of pulses.

On the other hand, percussion and auscultation, like other processes of diagnosis of today, were unknown.

Therapeutic processes were varied enough but empirical. For internal medication, physicians used plants, leaves, flowers, fruits, roots, or animal products or minerals, and sometimes surprising or repulsive substances. The physician was his own pharmacist and retailed his own product. Using a great many pharmaceutical tools, he made his decoctions—pills, powders, and drops. Of course injections were unknown. For external medication there were ointments, pomades, plasters, etc. They used also the "Moxa" (powder of Artemisia sinensis), cups, and sinapisms. Specialists took care of fractures and sprains—as mentioned, there was neither surgery nor true operation. They used only acupuncture.

Such was the state of the Vietnamese traditional medicine—built on empiricism and philosophical theories instead of scientific knowledge—when Western medicine began to appear.

Chief Facts Concerning the Introduction of European Medicine into Viet Nam

The first European physicians known in Viet Nam were Catholic missionaries who came during the seventeenth century (they had been earlier in China where the first European hospital was founded in Macao in 1569 by Bishop B. Carneiro).

In 1660, Father Langlois, a French missionary, left France for Siam (Thailand) and Laos (next to Viet Nam). From there he was called to the court of the Vietnamese king at Huê, where by his charity and devotion he became widely known. After him came Father Vachet of the Foreign Missions of Paris. In some provinces, many other missionaries from France or other countries also practised medicine. There was even a chemist.

But of the early medical missionaries the one who had the greatest influence was Father Koffler, a Pole, who took Father Vachet's place. He won so much esteem that he was allowed to remain five years after 1750, when the royal court, up to that time indifferent to the spreading of the Catholic religion, proclaimed an edict expelling all foreign missionaries. After Koffler, other missionaries of all nationalities were admitted at the court, but none as important as he.

However, during the seventeenth and eighteenth centuries European medicine, as practised by missionaries, gained little foothold in Viet Nam, the reason being that the primary interest of the missionaries was of course the diffusion of religious doctrines and not medicine. Nevertheless, two of these missionaries had had great influence and can be considered as the pioneers of European medicine in Viet Nam: Fathers Vachet and Koffler, who had founded the first hospitals and asylums.

During the nineteenth century, the missionaries no longer practised medicine, which was taken up by physicians. In 1820, Treillard, a French naval surgeon, was called for a consultation with Emperor Gia Long. Then Despiau, another naval physician, was appointed official physician of the court. He had been sent to Macao (China) to look for smallpox vaccine with the purpose of vaccinating the people.

Little by little European medicine found a place in Viet Nam. Even the differences between the French and Vietnamese governments and then the war between the two nations only temporarily stopped its progress. As people began to prefer European tech-

niques, physicians and students began to study modern medicine. Towards 1900 the Frenchmen began the establishment of a modern sanitary organization.

INFLUENCE OF WESTERN MEDICINE

The meeting of two civilizations, of two manners of thinking, even of two modes of treating illness, always brings about some changes on both sides. We cannot examine them all but shall only consider the influence of the West on the East.

Confronted with this new medicine, which was scientific, more simple and clear, and welcomed by the people because of its effectiveness, what was the reaction of the physicians of ancient medicine? After a period of disinterest came the time of comparison, consideration, then change or adaptation.

What are the results? The pathogenic fundamental conceptions of the old school are always maintained by a great number of our "ancient" physicians. All the cosmogonic theories of the five basic elements, of the two principles, male and female, etc. are still thought to be correct. Nevertheless, the younger physicians of this school, having a more modern culture with some notion of botany, hygiene, or medicine learned in school books or current texts, no longer believe in traditional theories. From patients cured in modern hospitals they have learned some pathogenic ideas, new means of diagnosis, and above all the efficacy of certain modern remedies. And they say: "If these new drugs would cure better, why not use them?"

We would insist on this point. If some ancient physicians understand something about microbes, microbial toxicity, leucocyte defense, etc., most of them simply annex the modern therapeutic products they know to be very efficacious and which they think easy to use. So it is still empiricism, but a special type, because they choose products in the modern therapeutic domain, a studied, consecrated domain. This leads to a totally different but none the less dangerous system of medicine. For example, some of them find that mercury, arsenic, bismuth could be successfully used against syphilis, but that is all they know about the disease. They do not realize they are using deadly poisons, they do not know either the proportions or the conditions needed to effect a cure without subsequent injury to the patient.

In the field of anatomy, ancient notions are completely abolished, but modern anatomy is no more studied. The tradi-

tional physicians have neither the opportunity nor perhaps the desire for it. Thus, one can find two neighboring shops, one with a new and rudimentary anatomy chart, the other with a prehistoric anatomical board.

These physicians have admitted some "new" sicknesses such as cerebrospinal meningitis, recurrent fever, stomach ulcer, cancer, etc. But it is in therapeutics that most additions have been made: quinine, mercury, arsenic, bismuth, sulfonamids, aspirin, alkalines, iron products, eyewashes, etc.

This is either a degenerated European therapeutics or a combination of two systems of medicine. As mentioned above, the result is sometimes poisoning; but often when the active ingredients are mixed only in very small quantities with ancient drugs, the remedies are simply ineffective. However, business is never lacking, for these remedies are not only plentiful but also cheaper.

Surgery is almost nonexistent except for some cutaneous operations or practice of acupuncture.

Conclusions

Modern medicine has certainly influenced the ancient medicine of Viet Nam, but superficially. It will not have deep consequences as long as antiquated basic theories remain. Therapeutic processes and medical products may change, but if the spirit does not change, the result is the same: traditional physicians will empirically make diagnoses and treat patients.

But is such a change possible? Is it even to be wished for? Our modern physicians trained in the western science are almost entirely hostile to the ancient school. Some years ago, there were polemics against both modern and ancient physicians, and the modern protest against practice of medicine by the ancient.

In some ways they are right to devote their time and force to the modern and scientific medicine, but their contempt for all the old therapeutics is perhaps not scientific or wise. Authorities in the matter have thought that even if the Vietnamese medicine, like the Chinese, is a backward one, nevertheless modern medicine in a way has and will continue to have something to learn from "its rich therapeutics, well based on experience and observation" (P. Huard). Many drugs used by western physicians come from this old therapeutics. Today, psychologists are discovering that emotions are determining factors in many diseases: this has been recognized for centuries in the East. Many European books have been

published in the attempt to clarify the numerous but unequal knowledge of Eastern medicine. It would be interesting to go on in this way and in further works study products known for their efficiency. This is perhaps particularly important for us, because it is a means of remaining in connexion with the past.

Lastly, it would be interesting to analyse it, "to see [as Professor Huard wishes] analogies existing between the medical systems of China, India and Europe, connected perhaps by some common origin; to look for the scarce but probable intellectual accords which could have influenced the human mind on the shores of the Mediterranean as well as on those of the China Sea."

Notes and Queries

Edited by Ralph H. Major, M.D.,* and Dorothy M. Schullian, Ph.D.†

A MS. Translation of the Arabic Version of Galen's DE ANATOMICIS ADMINISTRATIONIBUS

Galen's *De anatomicis administrationibus* is important for the history of anatomy as the chief source of knowledge of dissection in antiquity. It was in fifteen books. Of these there survive in the original Greek only the first eight and a half. The Greek text breaks off in the middle of the ninth book. The only early MSS. of the Greek are of the fourteenth century at Florence and Paris and of the fifteenth century at Oxford and Paris. All are listed by Hermann Diels in his *Die Handschriften der antiken Ärzte,* I. Teil, Berlin, 1905. The last six and a half books survive in an Arabic version published, with translation into German, by Max Simon as *Sieben Bücher Anatomie des Galen,* 2 vols., Leipzig, 1906. The account of the Arabic MSS. is given in Vol. I, p. X.

There is, however, a much earlier translation of this Arabic version. The object of this note is to remove a misunderstanding concerning it. Simon says that Dr. W. A. Greenhill, an excellent Greek scholar who died aged eighty in 1894, "undertook a translation which came later into possession of the Library of the Royal College of Physicians of London." Simon had not seen the alleged Greenhill MS., nor had the Bodleian Librarian of the time, Dr. A. Cowley, with whom Simon corresponded concerning it. Diels, p. 66, enters a *Latin* translation of the MS. as being at the Royal College of Physicians, Schedae Greenhill. (L.XI-XV).

It seems to me highly probable that this Latin translation of or by Greenhill had no existence. The Library of the Royal College of Physicians suffered greatly during World War II. Much of it was destroyed, but there has survived a MS. translation into *French* of the Arabic version in question. It is the work of G. Dugat, and a letter, dated 17 April 1855, from him to the distinguished historian Dr. Charles Daremberg is attached to it. This MS. came into the possession of Greenhill and contains notes both by him and by Daremberg. Along with other MSS. of Greenhill it passed, after his death, into the possession of the Royal College of Physicians. It is, I believe, the ownership by Greenhill of this MS. that gave rise to the widespread and false idea that there was a translation of this Arabic work of Galen by him. Its real author, Dugat, must have embarked on this enterprise just about a hundred years ago. It is clearly written and a scholarly production. A photostat copy would be of use to one who reads French more easily than Ger-

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man. It could be used to check Simon's rendering, and it might be the basis of an English version. Such a copy would ensure the survival of Dugat's work.

CHARLES SINGER

Lavoisier Exhibit at the Grolier Club

On Tuesday evening, February 19th, Mr. Denis I. Duveen will address the Grolier Club in New York on the occasion of the opening of an exhibit of the writings and memorabilia of Antoine Laurent Lavoisier. The exhibition will give an idea of the breadth and variety of Mr. Duveen's Lavoisier materials.

*Early Print Transfer**

The wide range of interests which occupied so many early physicians is nowhere more profusely illustrated than in the works of Pierre Borel,[1] whose curiosity extended far beyond the confines of his purely medical pursuits. It was, to be sure, a curiosity which all too often deteriorated into slavish credulity. But the experiments and receipts which he records, though they are in many instances impractical and even magical in character, can at times offer valuable background material for the history of science. Certainly scholars who have followed the recent experiments of the Library of Congress and Mr. W. J. Barrow[2] in transferring print as a means of replacing books of fragile physical condition will wish to know of Borel's description of similar efforts. Made for a different purpose, they antedate by some three hundred years the modern parallel.

The "marvelous secret for transcribing books and copper engravings" is related in Borel's *Historiarum et observationum medico-physicarum centuriae IV*.[3] Sandwiched in the midst of medical content between an account of a magic scalpel guaranteed to relieve toothache and other ills and a receipt to cure all fevers, it catches the reader quite unawares and is an excellent example of what may lurk undiscovered in many early books.

* I am grateful to Dr. John F. Fulton and Mr. Denis I. Duveen for having read this note in manuscript.

1 Eloy, N. F. J. *Dictionnaire historique de la médecine*, 1778, vol. 1, pp. 412-413; Haller, Albrecht. *Bibliotheca medicinae practicae*, 1779, vol. 3, p. 17.

2 *The Library of Congress Information Bulletin*, 26 April-2 May 1949, p. 7; 24 July 1950, p. 13; 15 October 1951, p. 8.

3 Paris, 1656, Centuria IV, Observatio LXXVI, pp. 339-340. Secretum mirum ad transcribendos libros et imagines aeri incisas. Propositio istius Arcani mihi a Doctissimo curiosissimoque Domino Samuële Hartlib. communicato fidem superat, & nequidem a demonibus fieri posse videtur, proponit enim librum transcribi posse intra horam, magnum licet, & quauis lingua etiam orientali, idque absque sumptibus & ab ignaro, imo a famulo vel ancilla, & idem de figuris aeri incisis. Id tamen sic fieri potest. Acc. saponem venetum, larde minutim, & cineris querni tantundem nec non calcis viuae propemodum addas. Tria haec in olla noua coquantur aqua, tum cocta ista materia, pluma leniter illinatur liber exscribendus, atque inter quodlibet folium inseratur chartae mundae aliud folium, quod & ipsum illini potest lenissime, vel nec illini, modo impressa charta lita sit. Sic claudatur liber probe & post paululum temporis torculari inseratur, vel malleo tundatur sed prior modus praestat, & expertus est. Ita exprimitur Typus in foliis mundis accurate, & tantum abest vt liber impressus corrumpatur, vt mundior potius eo fiat; quam ante fuerat. Exempta folia colliguntur & in speculo directe & perfecte leguntur ac si reuera impressa essent. Sed pro imaginibus speculo non opus est. Sic pauper licet sis, poteris paruis sumptibus Bibliothecam facere, eamque quasi incantatam cum tu solus in ea legere possis nempe ope speculi, vel translucem. Alij idem cum sale nitro sapone & aqua vitae idem peragere volunt, vides lector quam ingenue tibi omnia, etiam rarissima reuelem quare iis fruere, nec nimium indignis doce.

> The scheme detailed in this secret [says Borel], which Samuel Hartlib, a man most learned and thoroughly devoted to inquiry, has transmitted to me, surpasses belief. In fact, it seems possible not even for the spirit world. For he relates that a book can be transcribed within an hour even if it is a large one and no matter in what language, including Oriental tongues, it is written. And he adds that this can be accomplished by someone who is not educated, even by a servant or handmaid, and that the process applies also to copper engravings. It surpasses belief, I say, and yet this is the manner in which it can be done.
>
> Take some Venetian soap, shave it into small pieces, and add just as much oak ashes and almost as much quick lime. Boil these three ingredients in water in a new pot, and when the mass is cooked, smear it gently with a feather on the book which is to be transcribed, and at each folio insert another leaf of blank paper. This blank paper may also be very lightly smeared with the preparation, or the smearing can be limited to the printed folios. Then close the book well and after a little while put it in a press, or pound it with a hammer (the first method is better, and it has been tested). So the print is nicely transferred to the blank folios, and the printed book is so far from being harmed by the process that it actually comes out cleaner than it was before. Lastly take out the loose folios and gather them together, and you can read them directly and perfectly in a mirror as if they were actually printed.[4] Of course for the engravings you do not need a mirror. So even though poor you can acquire a library at small expense, and one which is enchanted, as it were, since you read in it by yourself, with the help of a mirror, to be sure, or against light. Others claim to arrive at the same result with natron and soap and alcohol. You see therefore, dear reader, how freely I reveal to you all secrets, even the rarest. Enjoy them then, but teach them not to those who are unworthy.

It is clear at once that the secret was not Borel's own. We have in operation here that early system of interchange according to which scholars, in a spirit of eager investigation, transmitted to one another by written or oral communication the particulars of their discoveries and inventions. The method of transcribing books reached Borel in France from England from the Polish scholar Samuel Hartlib,[5] friend of Milton, Boyle, and Harvey. Hartlib had attained in London a gratifying reputation as fosterer of the arts and sciences and of all those who practised them. In the particular circle in which he was moving there was during this period more than one manifestation of interest in methods of writing and book production. William Petty had perfected and dedicated to Robert Boyle a double writing or copying machine which, working with a combination of goose-quill pens and operated by hand, produced two copies of any given document.[6] Hartlib himself was concerned with calligraphy and "short writing"[7] and with the kinds and colors of inks used in printing and writing.[8] He had

[4] One is reminded of the copying books on which correspondence was reproduced at the end of the nineteenth and the beginning of the twentieth century. They contained usually five hundred leaves of extremely thin paper, either genuine Japanese tissue or some good imitation such as "Imperial Fibre." On these leaves outgoing letters were copied by dampening the leaves, inserting the letters, and applying pressure for ten or fifteen seconds. The product was mirror-writing, which was easily read from the reverse side of the tissue.

[5] Dircks, H. *A biographical memoir of Samuel Hartlib. . . .* London, 1865?; Turnbull, George Henry. *Samuel Hartlib, A sketch of his life and his relations to J. A. Comenius.* London, 1920; *DNB*, repr. 1921-22, vol. 9, pp. 72-73; Turnbull, George Henry. *Hartlib, Dury, and Comenius. Gleanings from Hartlib's papers.* London, 1947; Fulton, John F. A prolegomenon to the sciences. *Isis*, 1949, *40*, 102.

[6] Letter of William Petty to Robert Boyle, 21 June 1648, in Boyle's *Works*, London, 1772, vol. 6, 136-137; Hartlib, *A declaration concerning the newly invented art of double writing*. London, 1648; Fitzmaurice, Edmond. *The life of Sir William Petty, 1623-1687*. London, 1895, pp. 10-11, 13; letter from Professor G. H. Turnbull, 3 August 1949.

[7] Turnbull, *Hartlib, Dury, and Comenius*, pp. 57, 118.

[8] *Ibid.*, p. 107.

in fact told John Evelyn of an ink which would give a dozen copies when moist sheets of paper were pressed on it and would still remain perfect.[9] Many curious minds of the period must have been concerned with the practical applications of mirror writing.

The fact remains, however, that the "marvelous secret for transcribing books and copper engravings" was no more Hartlib's than Borel's. The Hartlib Papers owned by Lord Delamere contain on an undated single sheet accounts which are extremely close to the one in Borel. These accounts, made known to me and transcribed for me through the kindness of Professor G. H. Turnbull of the University of Sheffield, I quote below.[10] They support the statement of Evelyn[11] that Hartlib had a "receipt how to take off any print without the least injury to the originall," but they refer the process indubitably to Italy.

The reference to Italy clarifies the use of the term "sapo Venetus." This was probably the prototype of modern Castile soap, a soap prepared from olive oils and soda.[12] I am informed, however, by Mr. R. E. Hauber[13] of the Chemical Division of The Procter & Gamble Company that if Venetian soap, oak ashes, and quick lime were boiled together, as the receipt directs, in a quantity of water, a rather sorry product would result. The soap and quick lime would combine to form insoluble lime soaps which would rise to the surface and leave a liquid portion below. If the lime soaps could be separated from the remainder of the mixture they could, since they are greasy in nature, be smeared over a printed page, and some transfer of ink to a blank page might result. It is Mr. Hauber's opinion, however, that the original printed page would certainly be damaged, and that the receipt, if interpreted as above, is an unworkable proposition.

Unworkable or not, the secret traveled from Italy to England, back to France, and quite probably in varying versions elsewhere on the Continent. It aroused interest and enthusiasm in the very men most concerned then with the promotion of learning, and it is of renewed importance today in the light of modern experiments.

DOROTHY M. SCHULLIAN

9 *Diary of John Evelyn*. Henry B. Wheatley, Ed. London and New York, 1906, vol. II, p. 79, entry for 27 November 1655.

10 (Papers 1 and 2. The first account occurs also in German in the Papers.) Modus peculiaris Librum cujusque formae, si sit opus, semihorae spatio plane exscribendi. Inventus est nuper in Italia Modus peculiaris, quo Liber quamvis grandissimus, absque ullo atramento, semihorae, vel ad summum horae spatio, perfecte exscribatur, cujus jamdudum periculum est factum, quod re vera ita se habeat, uti dictum. Modus ejus Secreti constat rebus paucissimis. Sapo Venetus melioris notae raditur minutim, et cineris querni tantundem, necnon calcis vivae propemodum additur. Tria haec in olla nova coquuntur aqua; tum cocta ista materia pluma leniter illinitur Liber exscribendus, atque inter quodlibet folium inseritur chartae mundae aliud folium, quod et ipsum illini potest lenissime, vel nec illini, modo impressa charta sit lita. Sic clauditur Liber probe, et torculari inseritur, exiguo temporis spatio, vel malleo Compactorum majori tunditur, quanquam posterius hoc nondum exploratum est, ut illud alterum. Ita exprimitur typus in foliis mundis accurate, et tantum abest ut Liber impressus corrumpatur, ut mundior potius eo fiat, quam ante fuerat. Exempta folia colliguntur, et in speculo directe et perfecte leguntur, ac si re vera impressa fuissent. 2. Figuras ex aere chartae impressas, in chartam aliam transfundere. Paratur Lixivium acre et mundum, quo ectypus adversa pagina (spongia, penicillo, aut linteamine) madefit quod satis fit, ut inscripta facies sive atramentum solvi incipiat: id quod animadvertes, cum splendescere incipit, atque tum tempus est exprimendi, nec non interea facies madefacta prius satis exaruerit.

11 *Loc. cit.* This reference also I owe to Professor Turnbull, in a letter under date of 28 September 1949.

12 Stanislaus, I. V. Stanley and Meerbott, P. B. *American soap maker's guide*, 3rd edition. New York, 1928, p. 343; Campana, Antonio. *Farmacopea ferrarese*, 14th edition. Firenze, 1830, p. 132.

13 Letter under date of 2 August 1949.

Note on the Discovery of the Rolls Park Portrait of William Harvey

In his review of Keynes's *The Personality of William Harvey* in the *Journal of the History of Medicine,* 1951, *6,* 266-267, Dr. A. Malloch states: "The most important part of this book, to our mind, is Mr. Keynes' description of his discovery of a portrait of William Harvey in a 'derelict house, Rolls Park.'"

Priority as to the discovery of this Rolls Park portrait should belong to the late Sir D'Arcy Power. He published an account of this portrait in the *Annals of Medical History:* A Memorial Group of the Harvey Family, 1929, *n. s. 1,* 241. He re-discusses his discovery in his book: *The Foundations of Medical History,* published in 1931.

In a personal communication, Mr. Keynes states that he did not see Power's article in the *Annals of Medical History* "until recently."

In his Thomas Vicary lecture for 1948 before the Royal College of Surgeons on *The Portraiture of William Harvey,* Mr. Keynes states (p. 23): "In view of these facts I was surprised when the librarian of the Royal College of Physicians turned up an old photograph of one wall of the portrait room at Rolls Park showing the first Thomas Harvey and his seven sons, and revealing enough of their features to suggest to me that the top picture on the right-hand side near the ceiling had a distinct resemblance to the face of William Harvey. It seemed most improbable that an authentic portrait of Harvey had been so long overlooked, but I felt that an attempt must be made to identify it." The article by Sir D'Arcy Power mentioned above is illustrated by a photograph of a wall at Rolls Park showing Thomas Harvey and his seven sons, with identification of each son, including William. In a personal communication, Mr. J. J. Keevil, Library Keeper of the Royal College of Physicians, informs me that the photograph referred to by Mr. Keynes is identical with the photograph accompanying the article by Sir D'Arcy Power.

This investigation warrants the conclusion that priority of discovery of the Rolls Park portrait of William Harvey belongs to Sir D'Arcy Power.

MORRIS M. WEISS

New Appointments in the History of Medicine

Readers of the *Journal* will be interested to learn that a new Chair in the History of Medicine has been created at the University of Ferrara, and that Prof. Dott. Loris Premuda has been invited to occupy it.

Prof. Marcel Mouquin has recently been appointed to the Chair of the History of Medicine at the Faculté de Médecine at Paris. He used a pertinent quotation from Auguste Comte in his inaugural address: "He does not really know a Science who does not know its history."

Book Reviews

W. H. S. Jones. *Philosophy and Medicine in Ancient Greece,* with an edition of Περὶ ἀρχαιης ἰητρικης, (Supplements to the Bulletin of the History of Medicine, No. 8.) Baltimore, Johns Hopkins Press, 1946. 100 pp. $2.00.

The main title of this book of a hundred pages may seem to be somewhat misleading, for it is in the first place an edition of the Hippocratic treatise *On Ancient Medicine,* hereafter quoted as *A.M.* (Greek text, English translation, short notes at the end of each chapter, and a short introduction to the various literary problems of this treatise). This edition of *A.M.* occupies pages 38-100. The first thirty-seven pages comprise an historical introduction tracing the mutual relationship of medicine and philosophy as reflected by Greek medical literature to the time of Plato. In other words, the volume does not contain a general discussion of the relationship of medicine and philosophy for every period of the history of Greek medicine: Aristotle, though appearing several times, is not given a full treatment, and Hellenistic and late ancient medicine are excluded. This does not mean, of course, that this later part of the development of Greek medicine is without interest with regard to its relation to philosophy. On the contrary, the problem becomes even more fascinating and complicated in the later schools of Greek medical thought, when the problems of logic and methodology which were raised by the philosophy of Plato and Aristotle began to have their effect on the internal discussion of the medical schools concerning the character and scientific foundations of medical knowledge. But this exclusion appears justified if we bear in mind that the author's intent is to provide just enough information about the earlier period to give the reader of the treatise *A.M.* a sufficient background for its understanding. And there is no doubt that the discussion of the relation of medicine in the traditional sense of the word and the contemporary natural philosophy of the Periclean age to which the treatise belongs is one of the most interesting phases in the history of medicine. One can therefore recommend th author's idea of introducing the modern reader, who is no specialist in ancient medicine, to the problem by presenting him with the full text of that treatise in the so-called Hippocratic Corpus which contains the earliest discussion of this issue known to us.

Of the text and translation of *A.M.*, it will suffice to say that the author, who is well known to English readers through his bilingual edition of a number of the Hippocratic writings in the Loeb Classical Library, has followed the same pattern in this volume, and has indeed taken over text and translation of this treatise on the whole from that former edition. The excellent quality of his translations is generally recognized. The introduction to the treatise itself (pp. 38-47) gives a good résumé of the controversies of modern specialists on the treatise and its relation to other Hippocratic writings and problems.

The more original contribution of the book lies in the first thirty-seven pages of general introduction, in which the author tries to outline the development of the influence exercised by early Greek natural philosophy on medical thought and of that of Greek medicine on philosophy. Here, too, he gives a résumé of the discussion of this problem by the scholars of the last two or three generations, which has centered on the problems of this mutual relationship almost more than on the actual medical content of the Hippocratic writings, because the understanding of the personalities of the writers of these works, their chronology and tendencies, depends to a large extent on the right appreciation of this relationship. The uncertainties underlying the controversies among scholars spring partly from the fragmentary character of our tradition, partly from the difficulties which scholars have found in identifying the mutual and sometimes polemical references of medical and philosophical authors. E.g., as long as we are unable to say with some confidence who among the writers of Hippocratic treatises is referred to in Plato's famous praise of Hippocratic method in the *Phaedrus,* many secrets of the history of ancient medicine will remain undisclosed. The author of the present book tries to give a balanced judgment of what scholars have achieved so far and to add his own ideas.

From the point of view of the general reader, it must be said that his statement of the facts is clear, and his presentation of the problems never fails to indicate the exact degree of certainty or probability of every hypothesis he makes. It is only natural that scholars familiar with this field should find occasional reason for doubt in this part of the book, since so much remains and will perhaps always remain controversial. We cannot blame the author for the nature of his subject, but on the contrary must acknowledge that he has made a conscious effort to point out what remains uncertain in the picture. One of his favorite ideas, which in my opinion belongs in this category, is the assumption of a considerable influence of the Pythagorean school on Greek medicine in the fifth century B.C. He believes that the medical theories of Alcmaeon of Croton in South Italy were the channel through which Pythagorean ideas came to the Hippocratic writers. But Alcmaeon's relation to the Pythagoreans is obscure, and if hitherto we have all more or less taken for granted that Alcmaeon was the author to whom the writer of *A.M.* owed his theory that the predominance of one δύναμις (*facultas*) of the body over the others is the cause of all diseases, I must confess that recently I have begun to feel some doubt whether this is really so. For according to Alcmaeon, if we may trust the report of one ancient doxographer, the opposites warm and cold played an important part among other opposite faculties of the body as causes of disease; *A.M.*, however, puts great emphasis on the repeated statement that the contrasts of temperature are not the true cause, but δυνάμεις such as sweet and bitter and "innumerable others" of this kind. It looks as though the author of *A.M.* were referring to a contemporary discussion in which many partici-

pated rather than to a single author who had lived a considerable time previously and whose view we happen to know.

Another philosophical influence can be traced in the speculation of some of the Hippocratic writings (not *A.M.*) on the power of the number seven in medical matters and in nature in general. Such ideas can be traced back to an early age, since we find them as early as the first half of the sixth century B.C. in the hebdomadic poem of Solon, who seems to be following an Ionian medical source, as I have pointed out elsewhere. Similar ideas are found in several Hippocratic works, but they are also found in Aristotle, Diocles of Carystus, and Strato the Peripatetic scientist. I am less confident than Mr. Jones, however, in assigning a very early date to the schematizing treatise *On the Number Seven,* which is found in the Hippocratic corpus.

But these and other similar controversial points do not affect the value of the introduction as a very useful and well-informed guide. In general, the author confines himself to discussing the cases in which a dogma of natural philosophy is taken over as such by a medical author or a medical doctrine is used by a philosopher. In reality, the influence of Greek medical thought on philosophy and general intellectual culture extends, of course, much farther than that, and it would be another task to trace it in every form and every field. But we have to be content with what the author, according to his intention, presents in his introduction, and be grateful to him for pointing out the great importance of the treatise *A.M.* as a milestone in the history of the development of the relationship of medicine and philosophy. There it marks the vigorous reaction of traditional medicine, which was founded on observation and experience, against the invasion into medicine of general theories about the principles of nature from philosophical speculation. For a long time historians of Greek philosophy paid no attention to what seemed to be internal discussions in ancient schools of medicine. It was Theodor Gomperz of Vienna who in his work *Griechische Denker* (2d ed., vol. I, pp. 221ff.) first directed the eyes of philosophers and classicists to the empirical tendencies of the treatise *A.M.* and other similar works of the Hippocratic Corpus. Greek medicine has remained since the days of the author of *A.M.* the most important representative of the empirical element of human knowledge, though it should be admitted that the writer of *A.M.* who rejects the speculations and "hypotheses" (a word which he uses for the first time in this sense) of natural philosophy, is in his own theorizing not less dogmatic than the opponents to whom he refers. But it is impossible here to go into the details of his physiology. His therapy is dietetic and thus resembles the "ancient medicine" which he praises.

Among the more recent literature on Greek medicine and its relation to the general culture of the Greeks and to philosophy in particular is to be added the extensive chapter on "Greek Medicine" in my *Paideia* (vol. III, pp. 3-45), where this problem is approached from a new point of view: the position of medicine in the Greek conception of human civilization as a whole and the contribution of medicine to the classical ideal of man. More-

over since Jones' monograph was published, A.-J. Festugière's similar edition with French translation and a more detailed commentary has appeared. This refers to Jones' views in general and in detail. That the polemic of *A.M.* against "philosophy" in medicine was not the last word of the Greek mind on this issue and that a new strong influence of philosophy on medicine and of medicine on philosophy developed in the school of Aristotle only a century later I have shown in my book *Diokles von Karystos; die griechische Medizin und die Schule des Aristoteles* (see the survey of its results in *Philos. Rev.*, 1940, pp. 393-405).

Cambridge, Massachusetts WERNER JAEGER

CECIL WOODHAM-SMITH. *Florence Nightingale, 1820-1910.* New York, London, Toronto, McGraw-Hill Book Company, Inc., 1951. (ix) + 382 pp., illus. $4.50.

THIS book is not just another biography of the almost legendary figure of Florence Nightingale. On the contrary, in doing away with the familiar legend, it pictures for the first time the fascinating, many-sided personality this extraordinary woman actually was. The story of Florence Nightingale seemed to be well known. But out of these pages a character arises which is by far more complex than the gentle "lady with the lamp" we used to find in the history books. Mrs. Woodham-Smith was fortunate enough to be given access to family papers consisting of notes of Miss Nightingale to herself, diaries, letters, reports, and records which never before had been made available, and she has taken full advantage of her opportunity. With sensitive perception she traces Florence Nightingale's development from the lovely, rebellious, highly emotional daughter of a closely knit, high-strung Victorian family to the powerful woman of genius.

It appears that she was not only the founder of modern nursing and a leader of women, but an administrator and sanitarian of the first order, whose influence on the sanitary department of the British army cannot be overestimated. Early imbued with the call of her vocation, it took years of passionate struggle and mental agony until she was finally able to break away from the easy social life of her family and to fulfill her own destiny. Nothing could stop her, not even the call of love—she renounced the man she adored for the sake of her duty.

The episode of her mission in the Crimea is well known, but out of these pages all the horrors she encountered, the difficulties that opposed her, and which she mastered, arise anew in vivid detail. The record reveals all the determination of purpose that lived in her and that made her overcome the handicap of her delicate health, of her own emotional tribulations. Her organizational abilities and her talent for leadership and for winning collaboration even from determined opponents are shown in full action. But important as this episode was, her most significant work began only after her return from Scutari. Only then, living as a semi-invalid in

self-chosen seclusion in London, she set out on the vast task of reorganizing the sanitary administration of the British army, in peace and in war, of improving civilian hospitals, the living conditions of the army in India, all India's health and sanitation, workhouse and lying-in hospital administration, and sanitation everywhere. She worked relentlessly; report after report full of statistical detail and practical vision emanated from her pen, and governmental leaders came to draw on her expert knowledge in matters of health and sanitation to such a degree that her room became known as "the little War Office."

In judging what she accomplished, what she envisioned, and what she fought for, we realize with astonishment how valid her work and her aims remain even today. The professional nurse, of course, was called into existence by her almost singlehanded efforts. Miss Nightingale lived a long life, and year by year the legend that surrounded her grew in intensity. The whole world had adopted her as a symbol and as an idea.

Well written, intimate in its details and detached in its evaluations, this book deserves its place on the bestseller list, and should be welcome reading alike for the medical historian and the public at large.

Forest Hills, New York MARTHA ALEXANDER

DOUGLAS GUTHRIE. *Lord Lister. His Life and Doctrine.* Edinburgh and London, E. & S. Livingstone, Ltd.; Baltimore, The Williams and Wilkins Company, 1949. viii + 128 pp., illus. $3.50.

THE biographer has more than compensated for the omissions of detail that are unavoidable in a thumbnail (124-page) profile of Lord Lister, by a warm and anecdotal presentation of background material. The result is a readable and understanding account of Lister as a man, as well as a measurement of his contributions. The Edinburgh School of Surgery from which Lister emerged is described by introducing the Bell dynasty, James Young Simpson, and particularly the forceful and dynamic Professor James Syme. Syme was Lister's mentor for many years and his daughter, Agnes, became Lady Lister. Mrs. Janet Porter, staff nurse for forty-seven years in the Royal Infirmary and closely associated both with Syme and Lister, is made known to the reader by a full-page portrait.

Quite naturally the Edinburgh school receives the greatest emphasis, but similar attention is paid to Glasgow with its traditions of Peter Lowe and William Cullen. A description of the chilly reception Lister received in London, and of the resistance of the nurses at Kings College Hospital to changes in their routine, adds greatly to an understanding of this period of Lister's career.

The erroneous conceit that separates antisepsis from asepsis, and presents them as two different concepts with antisepsis attributed to Lister and asepsis to others, is dealt with briefly but firmly. Carbolic acid was but one part of the system of techniques devised by Lister for the avoidance of

sepsis. The carbolic dressing and spray were "protective" in their purpose, and the later substitution of heat as a means of killing germs was an evolution of method, not of basic concept.

An interesting item that in a way connects Lister with present-day antibiotics is shown in a facsimile reproduction of a letter written by him in 1878. To illustrate his notions of the fermentation of milk to a colleague, Lister sketched in the margin no less a mould than *Penicillium glaucum* with its "tassels of blue spores or threads."

Boston, Massachusetts EDWARD D. CHURCHILL

ROBERT STRAUS. *Medical Care for Seamen. The Origin of Public Medical Service in the United States.* New Haven, Yale University Press, 1950. xvi + 165 pp. $3.75.

CONTINUED progress in medicine during the past half century has contributed basically to the increasing public awareness of the question of medical care. Public interest in the adaptation of medical knowledge to social needs has grown until, today, the social organization of medical care has become a highly important matter of public policy. The bitter controversies which have raged over this problem, and which still envelope it in a cloud of slogans, indicate how urgently necessary it is to have a basis of established fact for systematic study and intelligent discussion.

This study of medical care for seamen in the United States is a significant contribution to the story of public medical care in this country. In tracing the evolution of medical services for American seamen, Straus has a broader purpose, namely, to identify the conditions under which the government entered the field of medical care, and to provide a basis for determining future trends in public medical care. Emphasis, however, is placed chiefly on the origin of the Marine Hospital Service and its evolution through various stages to the present. While most writers on this subject seem to think that public medical care for seamen originated with the "Act for relief of sick and disabled Seamen" enacted in 1798, Straus is aware that provisions of this kind existed in the colonial period, having been introduced as a part of the accepted British system. In England, measures to protect the health and welfare of seamen were first taken following the defeat of the Armada in 1588 and were extended by the Commonwealth and later governments.

One of the great merits of this study is in the endeavor to define the historical circumstances that led the United States government to enter the medical care field and at the same time to appreciate the development of the health service for seamen under the impact of varying economic, political, social, and ideological forces and circumstances. Straus concludes that six conditions have led the federal government to enter the field of medical care: (1) in the interest of national defense, (2) in the interest of federal wards or dependents, (3) when national health appears endangered, (4) pro-

vision of medical care as a reward or form of security for persons who perform dangerous work in the social interest, (5) when persons do not have access to adequate medical service locally, and (6) when persons performing socially necessary work are subject to health hazards or problems. Clearly some of the conditions that have operated in the past are still operative in our contemporary medical care problem.

This study has been carefully done and should be read by all who are concerned with the widest possible provision of medical care for the American people.

New York, New York GEORGE ROSEN

E. BASTHOLM. *The History of Muscle Physiology from the Natural Philosophers to Albrecht von Haller. A study of the history of medicine.* Kobenhavn, Ejnar Munksgaard, 1950. 275 pp. (Acta Historica Scientiarum Naturalium et Medicinalium, Edidit Bibliotheca Universitatis Hauniensis, Vol. VII). D. Crs. 24.00.

To the medical historian who would faithfully and objectively rediscover and recreate the known facts and systems of the distant past, a foremost pitfall may be difficulty in interpreting exact meanings in the original texts. From his modern vantage point the historian may yield to the temptation of ascribing to the ancient writers insight and concepts which they surely could not have possessed. Perhaps also the historian, in an understandable and commendable desire to bring the history of medicine and its significant figures in vivid colors to his modern reader, may find himself romantically investing the ancient past with a clothing of ideas not fashionable until much later. The author of this monograph has striven to avoid these difficulties in telling the story of the growth of our knowledge of the physiology of muscles from the days of the Greek natural philosophers up to the time when the experimental investigations of Haller assigned to muscle tissue the property of *irritability* and to nerves a specific property of *sensibility*. With Haller's vast and fundamental researches, experimental physiology may be said to have begun in earnest. With him muscle physiology and, indeed, biology as a whole began to cast loose from the guidance of particular philosophical trends and to evolve according to an entirely new viewpoint in which phenomena were isolated into anatomical-physiological problems whose solution was to be sought by experiment alone.

What came before Haller is the subject of Dr. Bastholm's monograph. He has for the most part confined his treatment to theories as to the genesis of muscular contraction as they were evolved, attaching less weight to questions of muscle work and heat generation and regulation. In surveying the evolution of these theories, the author has placed them in relation to the religious and philosophical currents which moved the individual and corporate life and which so profoundly animated medical thought. Dr. Bastholm's book is thus, as its subtitle promises, a study of the history of

medicine, giving illustrative precedence to the contractile functions of muscles. The story is attractively presented, and the English translation preserves a fresh and lucid style.

Richmond, Virginia EBBE CURTIS HOFF

Agnus Castus, A Middle English Herbal Reconstructed from Various Manuscripts. Edited with Introduction, Notes, and Glossary by Gösta Brodin. [Essays and Studies on English Language and Literature VI]. Upsala, 1950. 328 pp. Sw. Crs. 9:50.

THE title of the work *Agnus Castus* published in this volume is derived from the two initial words of a Middle English herbal. This treatise is one of the relatively numerous medieval works of this type. These herbals were intended to provide descriptions of medicinal plants. Often, a collection of recipes was also included, thus providing a handy guide or manual in case of illness or injury.

Most probably, *Agnus Castus* came into being at the end of the fourteenth century. Like other medieval medico-botanical works, it was derived primarily from Dioscorides and Pseudo-Apuleius, but the immediate source from which the English version was made seems to have been the Latin *Agnus Castus* Ms., Sloane 2948. Brodin feels that the Latin *Agnus Castus* was probably written in England by an Englishman. Whoever he was, references in the text indicate that he had studied Pliny, Galen, Isidore, and Platearius. Nonetheless, the writer shows a comparative degree of independence. For instance, he gives many descriptions of species characteristic of the British plant world, apparently derived from his own knowledge.

It seems quite clear that the Latin *Agnus Castus* was considered a valuable work, as indicated by a rather large number of English translations and even one into Welsh. Indeed, it is interesting to note that it enjoyed popularity even after printing was introduced, since it was printed in 1525 as the first part of Banckes's *Herball.*

As the herbal was intended for practical purposes, various aspects of medieval life are reflected in it. Naturally, diseases are prominent, among them intestinal disorders, dropsy, gout, the stone, leprosy, tooth worms, and the like. At the same time, purposes other than medical are not overlooked. Cooking recipes, beauty preparations, and measures against moths, flies, mice, and other household pests are all considered worthy of attention.

In preparing this edition of the English *Agnus Castus,* Brodin has given us a fine achievement. An extensive introduction describes *Agnus Castus,* places it in the history of botany, and deals at length with the various manuscripts, in particular Stockholm Ms. X90 upon which this edition is chiefly based. The text follows. After this come explanatory notes, a glossary, indices of modern Latin plant names, Greek plant names, personal names, and finally a bibliography.

New York, New York GEORGE ROSEN

JOHN J. FINAN. *Maize in the Great Herbals.* With a foreword by Edgar Anderson. Waltham, Mass., The Chronica Botanica Co.; New York, Stechert-Hafner, Inc., 1950. xvi + 140-191 pp., illus. $3.00.

JOHN W. Harshberger's monographic study of maize (1893) remains a classic in its field, and a great deal of biological, genetic, and practical study has been done since then. The present work analyzes with care and classifies the data recorded in the herbals of the fifteenth and later centuries. The Sturtevant Collection of pre-Linnean literature in the Missouri Botanical Garden at St. Louis holds most of the sources, and it is interesting to follow the accounts of a single, typical plant through this material.

Columbus (Peter Martyr) mentions maize, as do other of the Spanish invaders, and Oviedo appears to have given the first published illustration of an ear of corn. The plant was known to Plinius. Its earlier introduction into Europe is unknown; it may have come by way of Asia, but the discovery of the Western continents, with the rise of rational agriculture in Europe at the mid-millenium, attracted definite attention to the plant, and all the herbalists recognized it. Its importance in the lives of the natives of America was noted. The illustration given by Leonhard Fuchs (1542) will, like most of his other woodcuts, suffice even for this day and age. Later, Tabernaemontanus described in greater detail two forms, one with and another without prop-roots, the latter having come from the New World. These prop-roots had been first described by Valerius Cordus. Matthiolus reserved for maize an exclusively Western origin. Two types, the *Frumentum Asiaticum* and the *F. Indicum,* figure in most of the later herbals, with more or less detail of description, all of which is analyzed and carefully tabulated. The conclusion is that the herbals described and pictured a form close to the "Northeastern Flints," as figured by Fuchs. Its introduction into Europe may have been pre-Columbian. The other American type, with prop-roots, is much like corn from the Caribbean area and probably came to Europe with the Spanish explorers. The Eastern origin of maize, as already proved by Harshberger, is not supported by facts known.

The study of the woodcuts and their interrelations is not the least interesting feature of this well-illustrated and carefully edited contribution to our knowledge of Renaissance botany.

Elmhurst, Illinois J. CHRISTIAN BAY

H. WILLOUGHBY LYLE. *An Addendum to King's and Some King's Men (London).* London, New York, Toronto, Oxford University Press, 1950. viii + 211 pp., illus. $6.00.

THE enthusiasm and loyalty of H. Willoughby Lyle, Dean Emeritus of King's College Hospital Medical School, has led him to compile this "Addendum" to *King's and Some King's Men,* in order "to include some relevant matter which has not appeared in the original work, and to extend an

account of the Hospital and Medical School to the date of the 'appointed day' "—July 5, 1948, when "King's" ceased to exist as a London Voluntary Teaching Hospital, becoming part of the National Hospital Service under the Ministry of National Health. A variety of interesting historical and topographical detail, omitted from the original work, is gathered together in the first two sections; the next four deal with departments somewhat neglected previously; while the remainder of the book, in six additional parts plus an appendix, presents the history of "King's" from 1934 to 1948. It is in the nature of such a work—the whole of it is in reality an appendix —to be splintery and disjointed. It was not conceived as a coherent narrative, but as a chronicle of events, printed for record, together with biographical sketches of the principal persons concerned. The greater part of it will be of interest only to "King's men," and the most devoted alumnus is unlikely to read it from cover to cover. Nonetheless, it achieves its object, extending and completing the annals of a famous institution. Making no attempt at the formal writing of history or the analysis of materials, such books are among the necessary tools of the historian. The author is to be congratulated on a job well done.

Of greatest interest to the outsider is the section on the Nursing Department, which tells of the early difficulties with Sarah Gamp; of the great improvement in the period from 1856 to 1885, when nursing was provided by the St. John's House Sisterhood (C. of E.); of the breakdown of this arrangement because of the division of authority; and of the reorganization of the Department, with the establishment of the Training School for Nurses, effected by the first Sister Matron, Miss Katherine Henrietta Monk. It is well that the important contribution made to British nursing by the Sisterhood should be recorded from the viewpoint of one of the great hospitals which it served, for good and ill. The wisdom of Florence Nightingale in acknowledging from the first that the medical staff must be in complete control is of course entirely vindicated. It is unfortunate that we are told: "Accompanied by thirty-four nurses from St. John's House, Miss Nightingale left England on October 21 [1854] and went to Constantinople." Miss Nightingale actually went out with thirty-eight nurses, only six of them provided by St. John's House, for the Sisterhood was unwilling to accept Miss Nightingale's authority.

This is a very minor flaw indeed in a carefully compiled work. The great tradition of "King's," where Lord Lister's name stands preëminent and where many of the finest of the profession have studied, practised, and taught, informs the pages of this unpretentious book and inspires the present generation in Medical School and Hospital to carry it forward *sancte et sapienter.*

London, Ontario LLOYD G. STEVENSON

FREDERICK W. GOODRICH, JR. *Natural Childbirth, A Manual for Expectant Parents.* New York, Prentice-Hall, Inc., 1950. xii + 176 pp. $2.95.

WITHIN the past decade, we have seen almost a deluge of articles and books on what is called *natural* childbirth. In 1933, Grantly Dick Read wrote a book entitled *Natural Childbirth. Safe Childbirth* by Kathleen Vaughan appeared in 1937. This was followed in 1944 by the publication of an American edition of Read's work, under the title *Childbirth Without Fear.* In 1949, Helen Heardman prepared *A Way to Natural Childbirth–A Manual for Physiotherapists and Parents-To-Be,* and somewhat later another book called *Relaxation and Exercise for Natural Childbirth.* In 1950, Herbert Thoms published two volumes on the subject–*Understanding Natural Childbirth* and *Training for Childbirth.* The same year also saw the appearance of the volume reviewed here, namely, *Natural Childbirth* by Frederick W. Goodrich, Jr., a former associate of Dr. Thoms. In addition to the books mentioned above, medical journals, periodicals for the general public, and newspapers have all carried numerous articles on the subject of natural childbirth.

To the historian, this development is a phenomenon of considerable interest. It appears to be part of a general trend in medicine, another aspect of which is evident in the emphasis on "tender, loving care" and "cuddling" in pediatrics. There would seem to be a close analogy between these trends and the movement in the eighteenth century for breast-feeding of infants, and more affectionate handling of children by parents. The exploration of this theme would undoubtedly be an enlightening experience.

Dr. Goodrich's book is a good example of its genre. It deals with the anatomy and physiology of the female reproductive organs, the period of pregnancy including both its physiology and psychology, and the postpartum period. Related topics such as rooming-in and breast-feeding are discussed. The language is simple, and the book is a useful compendium for expectant parents.

New York, New York GEORGE ROSEN

HERMAN HAGEDORN. *Prophet in the Wilderness: The Story of Albert Schweitzer.* New York, The Macmillan Co., 1947. 221 pp. $3.00.

"CARPENTER and builder . . . physician, preacher . . . and judge. A traveller who observes like a painter and writes like a poet; man of letters who conducts an operation in the African jungle, and finds time to hold a black man's hand and tell him who has sent this doctor into the heart of darkness. A surgeon, obviously, but a surgeon who practises Bach and César Franck as the swift darkness falls; a musician who writes far into the night concerning the restoration of civilization . . . a doctor of medicine, a doctor of theology, a doctor of music, a doctor of philosophy."

Hagedorn, a brilliant biographer, has given us a distinguished life of the great Schweitzer, one who, though he held great fame fast in his hands, yet,

"one chilly day, with the leaves falling all about him, put it all aside to become a doctor among the savages of central Africa." What a surgeon! What a man for insight of human nature! Truly called "the great man's great man."

Schweitzer never forgets that the native fetishman also professes to heal and that, in the mind of the native patient he must, to be effective, outmagic the magician. His assistant noted how Dr. Schweitzer occasionally took on the manner and almost the quality of the grand sorcerer, looking slyly at the nurse who acted as interpreter, as he devised elaborate ruses to persuade the black man that the work, Pain, was being exorcised. And every time he journeyed across the sea to his native Alsace, standing on the deck of the steamer off Cape Lopez, he, and his nurses with him, would be thinking of Africa, the terror of it and the beauty, the natives, so maddening and so dear, of his work there, so exhausting and so satisfying. What a man! What a story Hagedorn has told!

New York, New York EDWARD H. HUME

JOHN HILTON. *Rest and Pain.* Edited by E. W. Walls and E. E. Phillips, in collaboration with H. J. B. Atkins. Philadelphia, J. B. Lippincott Co., 1951. xxxiv + 503 pp., illus. $10.00.

THIS attractively presented volume is the sixth edition of a treatise made famous by frequent allusion. Its appearance at this time is very obviously a labor of scholarship. Walls and Phillips, both Middlesex Hospital men, sought the collaboration of Atkins of Guy's Hospital where the name of Hilton is revered as one of its masters and his book is said to be the "Guy's man's Bible." With the possible exception of the men of Guy's, however, I am afraid that like the true Bible it has been far more often referred to than read.

The new edition reproduces the title-page of the first edition of 1863. The original title is worth copying in full since it suggests most aptly Hilton's major theses: *On the influence of mechanical and physiological rest in the treatment of accidents and surgical diseases, and the diagnostic value of pain.* The book consists of eighteen lectures delivered before the Royal College of Surgeons during the years 1860, 1861, and 1862. To each lecture the editors have appended notes which lend a more modern interpretation to some of the outmoded material. The typography and format of the volume are as delightfully Victorian as is the quality of the writing. It should be a most agreeable gift for those who relish the older clinical masterpieces of medical literature.

While acknowledging without reservation the importance of Hilton's position as an outstanding teacher to his generation and its immediate successors, I cannot entirely endorse Wood Jones's enthusiasm copied in the editors' preface: "Hilton's Lectures . . . should be read by every medical student once at least during his study of anatomy . . . and afterwards as

often as possible during his career as a medical practitioner." I would agree, if no other treatises were available. It is still a very good book, but many of the extended clinical descriptions are often inconclusive and in 1951 might have been easily recognized by any well-trained and alert young medic within reach of an X-ray or laboratory. Hilton's oft-repeated emphasis on the diagnostic importance of local surface warmth in the detection of inflammation even of deep structures does not inspire the same desire to refine our tactile sense as it did in the days before blood sedimentation rates, white cell counts, and aseptic aspiration became common practice.

In his insistence on the therapeutic value of rest Hilton played the part of one among many, but in his early recognition of the diagnostic significance of referred pain his distinction is great indeed. The perceptive anatomical analyses and illustrations which were heard in his lectures and recorded in his book were primary factors in bringing this concept into the realm of the active practitioner. A large part of the material of the lectures consists of the clinical case reports illustrating these two theses. Unfortunately for the reader, the material tends to become quite repetitious. Now that the two principles have become an integral part of medical practice one needs no longer to have their value demonstrated in repetitive detail.

Rest and Pain is certainly one of the masterpieces of medical literature and has earned its place on the library shelf among the famous books of the past. But I do not think it is of the rank of the classics. The vast clinical erudition of the Hippocratic Corpus or Paré, the brilliant scientific intelligence of John Hunter or Claude Bernard, the objectivity of Vesalius, James Paget, or Duchenne are of a different calibre. In these books one can easily elide the paragraphs of outworn concepts because of the breadth of vision and the timelessness of their basic contributions. It is true, as his editors remark, that Hilton is of their chain, but to my mind, he is not one of the major links. I cannot help but feel that the editors would do their favorite a greater service if they would soon issue a seventh edition with a far more generous use of their blue pencil. A one-hundred-page volume of *Rest and Pain* would be excellent corollary reading in clinical practice for a young surgeon at the start of his career. In its present form, however, I must concede that there are more valuable current treatises of comparable size with which he could more profitably employ the same hours.

New York, New York EDGAR M. BICK

BETSY COPPING CORNER. *William Shippen, Jr., Pioneer in American Medical Education.* Philadelphia, American Philosophical Society, 1951. xiii + 161 pp., illus. $2.75.

THIS is not a biography but a sketch, designated as an essay. The main feature is a portion of a journal kept by William Shippen, Jr., while a student of medicine in London and Edinburgh. The months covered are

from July 1759 to January 1760. This fragment was recently found in an attic in Baltimore. Shippen was in Great Britain during nearly four years beginning in October 1758.

The value of this book lies in the intimate description of the daily doings of a medical student in foreign study. One gets some conception of the character of William Shippen, Jr., in the years of his young manhood. His major interest was in the study of obstetrics under Colin Mackenzie who had begun teaching this subject in 1754—an interest somewhat surprising in view of the prejudice at that time against the practice of obstetrics by men.

He later turned to anatomy and studied under William Hunter and his younger brother John Hunter. He became well acquainted with John Fothergill who had influence in establishing institutional medical education in Philadelphia.

William Shippen, Jr., was born in Philadelphia in 1736. He was the son of William Shippen, a prominent physician of that city, who was one of the founders of the Philadelphia Hospital in 1753 and who participated in the founding of the College of New Jersey. Edward Shippen, a brother of the elder Shippen, was a merchant in Lancaster, Pennsylvania, and helped the younger William Shippen to finance his medical study.

Young Shippen received the degree of Bachelor of Arts from the College of New Jersey—now Princeton University—in 1754 at the age of eighteen years and was valedictorian of his class. He then spent four years as medical apprentice to his father. He became acquainted during these years with many prominent families of Philadelphia which was of service in securing introductions to influential persons in London. His relations are shown by the fact that when leading men of Pennsylvania visited London, the young medical student was invited to dine with such men as the Provost of the College of Philadelphia, the Governor of the Province of Pennsylvania, and Benjamin Franklin. He had similar invitations from the President of the Royal College of Physicians.

The young medical student had exceptional opportunities and his journal should not be considered an outline of the experience of the average American young man who went to London to study medicine.

The experience in practice, teaching, and public service of William Shippen, Jr., after he returned to Philadelphia in the fall of 1762 is only briefly considered. He had received the degree of Doctor of Medicine at the University of Edinburgh in September 1761.

This brief treatment contains little information that has not already been published, but the book is well printed and bound and is worthy of reading by anyone interested in medicine in the American Colonies and in London and Edinburgh in the mid-eighteenth century.

Cleveland, Ohio FREDERICK C. WAITE

JOHN F. FULTON. *Humanism in an Age of Science, being a Ludwig Mond Lecture delivered at the Manchester School of Medicine 6 October, 1949.* New York, Henry Schuman, 1950. 26 pp. 75 cents.

THE basic theme of Dr. Fulton's lecture is a matter of considerable moment to all concerned with teaching in the humanities and the sciences so as to give students a more realistic preparation for living in the contemporary world. With the need for bridging the gap between the humanities and the sciences there can be no disagreement. Nor is there any doubt that the historical approach is probably the most useful method toward this end. However, one may very well question whether Dr. Fulton's call for a new humanism, or the examples which he has chosen to illustrate his solution, are adequate for the achievement of the desired goal.

To show how the gap between science and the humanities might be bridged in teaching, Dr. Fulton has chosen to present certain interrelationships between science and literature. Thus, he discusses the influence of the telescope, especially on Milton's *Paradise Lost*. Nevertheless, despite the interesting manner in which the material is presented, it seems likely that this method, unless supplemented by more fundamental matters, will achieve little or will even remain completely sterile.

For after all, what Dr. Fulton is discussing is only a technique, and the success of any technique depends on the skill with which it is applied, as well as on its relevance to the value system within which it is used. There is no doubt about Dr. Fulton's skill in the use of the historical and cross-disciplinary approach, but neither is there any indication in his discussion of the relevance of the method or of the value system as an expression of which it is to be used. Humanism as a philosophy and value system must start out from a knowledge of man, his nature, and his needs. It is in relation to the students' needs that scholarship and the humanities must be discussed and taught. The vocational aspirations of students must be recognized, and these should be related to an ideal of service to the community. Toward this end the student must know where he stands professionally in the community, what problems he will have to deal with and why. On this basis the student can be shown that no subject can be thoroughly understood both in its certainties and its uncertainties without reference to its historical background, to its relation to other branches of knowledge or human activity, or to its social implications. Unless this is done, all good wishes and exhortations for a new humanism will be of small avail. Nevertheless, Dr. Fulton's lecture should be read, thought about, and discussed. As a catalyst it is recommended.

New York, New York GEORGE ROSEN